照明监控系统平台南向对接规范

第 2部分：回路监控箱接口说明

目 录

1. Json消息包格式 5

2. Json数据单元格式 7

2.1. 功能码00 7

2.1.1. 确认 7

2.2. 功能码01 9

2.2.1. 终端重启(下行报文) 9

2.2.2. 终端数据软复位(下行报文) 10

2.3. 功能码02 11

2.3.1. 登录(上行报文) 11

2.3.2. 登出(上行报文) 13

2.3.3. 心跳(上行报文) 14

2.3.4. 心跳(下行报文) 15

2.4. 功能码04 16

2.4.1. 连接地址和端口设置(已弃用) 16

2.4.2. 通信参数设置 17

2.4.3. 遥信量参数设置 18

2.4.4. 模拟量参数设置 20

2.4.5. 设置终端停运投运参数（预留扩展功能） 23

2.4.6. 控制器多时段开关灯参数设置 23

2.4.7. 设置终端事件配置 25

2.4.8. 控制器全年开关灯时间参数设置 28

2.4.9. 设置全天开/关灯参数 31

2.4.10. 设置外接电表参数 32

2.4.11. 设置连接方式（已弃用） 33

2.4.12. 设置连接参数 33

2.4.13. 设置带APN连接参数 35

2.4.14. 设置GPS信息 36

2.4.15. 设置内置电表数据冻结时间 37

2.4.16. 设置设备密码保护参数 38

2.5. 功能码05 39

2.5.1. 控制器遥控操作(下行报文) 39

2.5.2. 对时命令/校时命令(下行报文) 41

2.5.3. 清除回路保护标志(下行报文) 42

2.5.4. 设置回路保护标志(下行报文) 43

2.5.5. 清除事件记录（下行报文） 43

2.6. 功能码09 45

2.6.1. 请求终端配置命令(下行报文) 45

2.6.2. 请求终端配置信息回复(上行报文) 46

2.7. 功能码0A 48

2.7.1. 查询遥信量分类(下行报文) 48

2.7.2. 查询遥信量分类回复(上行报文) 49

2.7.3. 查询模拟量分类限值(下行报文) 51

2.7.4. 查询模拟量分类限值回复(上行报文) 52

2.7.5. 查询控制器开关灯时间参数(下行报文) 54

2.7.6. 查询控制器开关灯时间参数回复(上行报文) 55

2.7.7. 查询通信参数(下行报文) 57

2.7.8. 查询通信参数回复(上行报文) 58

2.7.9. 查询连接地址和端口设置(下行报文)（已弃用） 59

2.7.10. 查询连接地址和端口参数回复(上行报文)（已弃用） 59

2.7.11. 查询终端停运/投运参数(下行报文) 60

2.7.12. 查询终端停运/投运参数回复(上行报文) 61

2.7.13. 查询终端事件配置(下行报文) 61

2.7.14. 查询终端事件配置回复(上行报文) 62

2.7.15. 查询控制器全年开关灯时间参数（下行报文） 65

2.7.16. 查询控制器全年开关灯时间参数（上行报文） 67

2.7.17. 查询全天开/关灯参数（下行报文） 70

2.7.18. 查询全天开/关灯参数（上行报文） 72

2.7.19. 查询外接电表参数（下行报文） 75

2.7.20. 查询外接电表参数（上行报文） 76

2.7.21. 查询连接方式（下行报文）（已弃用） 77

2.7.22. 查询连接方式（上行报文）（已弃用） 77

2.7.23. 查询连接参数（下行报文） 78

2.7.24. 查询连接参数（上行报文） 78

2.7.25. 查询带APN连接参数（下行报文） 80

2.7.26. 查询带APN连接参数（上行报文） 81

2.7.27. 查询经纬度开关灯时间（下行报文） 82

2.7.28. 查询经纬度开关灯时间（上行报文） 83

2.7.29. 查询内置电表数据冻结时间（下行报文） 84

2.7.30. 查询内置电表数据冻结时间（上行报文） 85

2.7.31. 查询设备密码保护参数（下行报文） 86

2.7.32. 查询设备密码保护参数（上行报文） 87

2.8. 功能码0C 88

2.8.1. 终端日历时钟实时查询(下行报文) 88

2.8.2. 终端日历时钟实时回复(上行报文) 88

2.8.3. 模拟量查询(下行报文)（已弃用） 89

2.8.4. 模拟量查询回复(上行报文)（已弃用） 90

2.8.5. 遥信量查询(下行报文)（已弃用） 90

2.8.6. 遥信量查询回复(上行报文)（已弃用） 90

2.8.7. 模拟量批量查询(下行报文) 91

2.8.8. 模拟量批量查询回复(上行报文) 91

2.8.9. 遥信量批量查询(下行报文) 97

2.8.10. 遥信量批量回复(上行报文) 98

2.8.11. 终端运行状态查询(下行报文) 103

2.8.12. 终端运行状态回复(上行报文) 104

2.8.13. 终端GPS地理位置信息查询(下行报文) 105

2.8.14. 终端GPS地理位置信息回复(上行报文) 106

2.8.15. 回路保护状态查询（下行报文） 107

2.8.16. 回路保护状态查询（上行报文） 108

2.8.17. 外接电表数据查询（下行报文） 108

2.8.18. 外接电表数据查询（上行报文） 109

2.8.19. SD卡状态查询（下行报文） 111

2.8.20. SD卡状态查询（上行报文） 112

2.8.21. 电能数据查询（下行报文） 113

2.8.22. 电能数据查询（上行报文） 114

2.9. 功能码0D 116

2.9.1. 请求模拟量历史数据(下行报文)（已弃用） 116

2.9.2. 请求模拟量历史数据回复(上行报文)（已弃用） 117

2.9.3. 查询内置电表冻结数据（下行报文） 118

2.9.4. 查询内置电表冻结数据（上行报文） 120

2.10. 功能码0E 121

2.10.1. 请求重要事件（下行报文） 121

2.10.2. 请求重要事件回复(上行报文) 122

2.10.3. 请求一般事件(下行报文) 125

2.10.4. 请求一般事件回复(上行报文) 126

2.11. 功能码10 130

2.11.1. FTP升级命令(下行报文) 130

2.11.2. FTP升级命令确认(上行报文) 133

2.11.3. FTP升级结果(上行报文) 133

2.11.4. FTP升级结果确认(下行报文) 135

2.11.5. 下发通知远程升级(下行报文)（旧版升级方式） 135

2.11.6. 请求升级数据(上行报文)（旧版升级方式） 137

2.11.7. 下发升级数据(上行报文)（旧版升级方式） 138

2.12. 光照计协议 138

2.12.1. 光照计实时数据(扩展设备上行报文) 138

2.13. 附录1 事件格式 140

终端供电记录 140

# Json消息包格式

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| root | parent | child |  | description |
| msg\_dev\_type |  |  | 公共消息包头 | int，设备厂商编码 |
| msg\_afn |  |  | 功能码（可以理解为协议的类别） |
| msg\_frm |  |  | rep/req(PRM)  0代表从动站  1代表启动站 |
| msg\_uid |  |  | 监控箱uid  string类型，固定16个字符，不足16个字符则末尾补0  如：”1234567800000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 |
| msg\_con |  |  | 是否需要确认:1是, 0否 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型  如果包含pfc字段，则该值为pfc的低4位 |
| msg\_acd |  |  | 是否带事件计数器，0无，1有 |
| event\_serious |  |  | 重要事件计数器/上行才有的字段 |
| event\_common |  |  | 普通事件计数器/上行才有的字段 |
| host |  |  | 字符串，设备层ip，上行包才会带该字段  ，告知平台回复包的下发的地址 |
| port |  |  | 字符串，设备层port，上行包才会带该字段，告知平台回复包的下发的地址 |
| msg\_tpv json对象  空对象代表没有时间标签  主动上报没有， 下发如果有时间标签，回复上报也要有 | 时间标签 | day | 日 |
| hour | 时 |
| min | 分 |
| sec | 秒 |
| delay | 传输延时 单位分钟 |
| pfc | 帧序列号范围0-255 int类型 |
| msg\_content[n]  数据单元数组 | Json对象 | cmd |  | 命令名字，字符串类型，每条协议有一个对应的命令，具体参考各个协议cmd的值 |
| pn |  | 信息点，一般用来描述协议中的索引信息，如果协议中没说明功能用途则写0 |
| xx1 |  | 应用数据见下面数据协议具体内容 |
| xx2 |  |
| Json对象 | cmd |  | 同上 |
| pn |  | 同上 |
| yy1 |  | 应用数据见下面数据协议具体内容 |
| yy2 |  |
| yy3 |  |
| yy4 |  |
| ……省略N个数据单元……… | | | |
| Json对象 | cmd |  | 同上 |
| pn |  | 同上 |

**\*协议制定规则参考：**

**1.上下行协议cmd字段命令字符串要一致，**

**2.msg\_content里面的字段名上下行要一致，不要同一种属性上下行字段名不一样**

**3.msg\_content里面字段命令用驼峰法表示类似 connectAdress**

**4.字段名字不要缩写比如stop，start 不要用st\_xxx,so\_xx an\_ena ,要完整整个单词 例如“ comaddr 通信地址 ”最好是connectAdress这样比较好理解**

**5.json字段内容是对象或者数组或者int/string要在表格里面说明**

**6.所有字段名不能操作3个单词，长度最好控制18个字符以内。**

**7.cmd命令字查询类用query开头，设置类用set开头**

Json数据实例

{

"msg\_uid": "0000000000000001",

"msg\_dev\_type": 3,

"msg\_afn": 2,

"msg\_frm": 1,

"frame\_con": 1,

"msg\_pseq": 14,

"msg\_frame": 3,

"event\_serious": 114,

"event\_common": 202,

"msg\_acd": 1,

"msg\_tpv": {

"pfc":"94",

"day": "1",

"hour": "2",

"min": "3",

"sec": "4",

"delay": "255"

},

"msg\_content": [

{

"pn": "2",

"fn": "0"

},

{

"pn": "2",

"fn": "0",

"data\_x": 666

},

{

"pn": "2",

"fn": "0",

"data\_x": 666,

"data\_y": 888,

"data\_z": 110

}

]

}

# Json数据单元格式

## 功能码00

### 确认

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 00H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 0 |
| msg\_tpv json 对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签,下行才有的字段 | day |  | 日 | 5 |
| hour | 时 | 9 |
| min | 分 | 15 |
| sec | 秒 | 39 |
| delay | 传输延时 单位分钟 | 1 |
| pfc | 帧序列号范围0-255 int类型 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “confirm” |
| pn |  | 0-65535 0(p0) | 0 |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 0,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 13,  "msg\_frame": 3,  "event\_serious": 36,  "event\_common": 157,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 77,  "sec": 0,  "min": 53,  "hour": 7,  "day": 23,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "cmd": "confirm"  }  ]  } | | | | | |

**PS：**

**确认一方回复相同msg\_pseq**

**如果主动发送一方带有msg\_tpv，则确认一方回复相同msg\_tpv**

**功能码04、05的请求统一回复确认**

确认分两种情况：

下行确认：就是设备上报了了事件，上位机收到了，下发确认

上行确认：上位机下发命令，设备回复确认

## 功能码01

### 终端重启(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 01H |
| msg\_frm |  |  | rep/req(PRM) | 1(主动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 1 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 0 |
| msg\_tpv json 对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签,下行才有的字段 | day | 日 | 5 |
| hour | 时 | 9 |
| min | 分 | 15 |
| sec | 秒 | 39 |
| delay | 传输延时 单位分钟 | 1 |
| pfc | 帧序列号范围0-255 int类型 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “rtuBoot” |
| pn |  | 0-65535 0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 57,  "delay": 2,  "min": 58,  "hour": 9,  "pfc": 119,  "day": 22  },  "msg\_pseq": 7,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "rtuBoot",  "pn": 0  }  ],  "msg\_afn": 1,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

终端回复确认，具体参考确认报文

### 终端数据软复位(下行报文)

恢复出厂设置并重启

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 01H |
| msg\_frm |  |  | rep/req(PRM) | 1(主动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 1 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_tpv json 对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签,下行才有的字段 | day | 日 | 5 |
| hour | 时 | 9 |
| min | 分 | 15 |
| sec | 秒 | 39 |
| delay | 传输延时 单位分钟 | 1 |
| pfc | 帧序列号范围0-255 int类型 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | fn | “softReset” |
| pn |  | 0-65535 0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 21,  "delay": 2,  "min": 13,  "hour": 9,  "pfc": 57,  "day": 21  },  "msg\_pseq": 9,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "softReset",  "pn": 0  }  ],  "msg\_afn": 1,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

终端回复确认，具体参考确认报文

## 功能码02

### 登录(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 00H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_acd |  |  | 是否带事件计数器，0无，1有 | 1 |
| event\_common |  |  | 普通事件计数器/上行才有的字段 | 0 |
| event\_serious |  |  | 重要事件计数器/上行才有的字段 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “login” |
| pn |  | 0-65535 0(p0) |  |
|  |  | signal |  | 信号强度 | 200  范围0-255 |
|  |  | ICCID |  | 设备通讯卡识别码 | 字符串（最长20字符） |
| {  "msg\_uid": "00000000000113da",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 2,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 0,  "msg\_frame": 3,  "event\_serious": 0,  "event\_common": 200,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "signal": 2,  "ICCID": "12345123451234512345",  "cmd": "login"  }  ]  } | | | | | |

**回复：平台不需回复**

### 登出(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 00H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_acd |  |  | 是否带事件计数器，0无，1有 | 1 |
| event\_common |  |  | 普通事件计数器/上行才有的字段 | 0 |
| event\_serious |  |  | 重要事件计数器/上行才有的字段 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f2) | “logout” |
| pn |  | 0-65535 0(p0) | 0 |
| {  "msg\_uid": "00000000000113da",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 2,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 0,  "msg\_frame": 3,  "event\_serious": 0,  "event\_common": 200,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "cmd": "logout"  }  ]  } | | | | | |

**回复：平台不需回复**

### 心跳(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 00H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_acd |  |  | 是否带事件计数器，0无，1有 | 1 |
| event\_common |  |  | 普通事件计数器/上行才有的字段 | 0 |
| event\_serious |  |  | 重要事件计数器/上行才有的字段 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 1024(f3) | “beat” |
| pn |  | 0-65535 0(p0) | 0 |
|  | heartbeat |  | Int | 200  范围0-255 |
|  |  | ICCID |  | 设备通讯卡识别码 | 字符串（最长20字符） |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 2,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 14,  "msg\_frame": 3,  "event\_serious": 36,  "event\_common": 157,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "heartbeat": 10,  "ICCID": "898604921921C0298673",  "cmd": "beat"  }  ]  } | | | | | |

### 心跳(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  | 公共消息包头 | int | 1 |
| msg\_afn |  |  | 功能码分类 | 00H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 1024(f3) | “beat” |
| pn |  | 0-65535 0(p0) | 0 |
| {     "msg\_tpv":{      },     "msg\_pseq":14,     "msg\_frame":3,     "msg\_content":[         {             "cmd":"beat",             "pn":0         }     ],     "msg\_afn":0,     "msg\_con":0,     "msg\_dev\_type":3,     "msg\_uid":"0000000000010907",     "msg\_frm":0 } | | | | | |

## 功能码04

### 连接地址和端口设置(已弃用)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn | “setConnectParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | 1byte 主用IP段1 | 192 |
|  | mip2 |  | 1byte 主用IP段2 | 168 |
|  | mip3 |  | 1byte 主用IP段3 | 16 |
|  | mip4 |  | 1byte 主用IP段4 | 90 |
|  | mport |  | 2bytes主用端口  0-65535 | 1000 |
|  | mapn |  | 16byte主用APN | “…..” |
|  | mvpn |  | 32 byte主用VPN | “…..”域名 |
|  | bip1 |  | 1byte 备用IP段1 | 192 |
|  | bip2 |  | 1byte 备用IP段2 | 168 |
|  | bip3 |  | 1byte 备用IP段3 | 20 |
|  | bip4 |  | 1byte 备用IP段4 | 157 |
|  | bport |  | 2bytes备用端口 | 1050 |
|  | bapn |  | 16bytes备用APN | “…..” |
|  | bvpn |  | 32bytes备用VPN | “…..”域名 |
|  | | | | | |

### 通信参数设置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “setCommParam” |
|  | pn |  | 0-65535 0(p0) |  |
|  | timeout |  | 超时时间(秒) | 值范围0-15 |
| retry |  | 重发次数 | 值范围0-3 |
| conf |  | 通信确认  1字节,相应位置1表示需要主站确认。  D0:实时数据确认位  D1:历史数据确认位  D2:事件记录确认位  D3-D7:备用 | 1 |
|  | beatcycle |  | 心跳周期  单位:min | 5 |
|  | rtdatacycle |  | 实时数据上报周期  单位:min | 2 |
| hisdatacycle |  | 历史数据上报周期  单位:min | 10 |
| {  "msg\_tpv": {  "sec": 25,  "delay": 2,  "min": 52,  "hour": 9,  "pfc": 117,  "day": 22  },  "msg\_pseq": 5,  "msg\_frame": 3,  "msg\_content": [  {  "hisdatacycle": 60,  "beatcycle": 5,  "rtdatacycle": 2,  "conf": 7,  "cmd": "setCommParam",  "pn": 0,  "timeout": 15,  "retry": 3  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

**PS：**

**功能码0x04的协议回复统一回复确认，下面协议一样不在重复说明**

**确认协议格式具体参考对应确认协议章节说明**

### 遥信量参数设置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn | “dsignparam” |
| pn |  | 0-65535  0(p0) | 0 |
| conf\_sig\_n |  | 本次配置的遥信点个数 1字节 | 3 |
| sig\_st |  | 起始遥信点号  1字节 | 0 |
| romote\_point [n] | point\_num |  | 遥信点编号 |
| rep\_sig\_type |  | 遥信点类型: 1字节  0开关 1失电  2接触器状态  3节能档位状态  4继电器状态  5手动开关状态  6门磁或转换开关  7输出状态  0x0A 禁用 |
| rep\_sig\_flag |  | 进出线标志：0 进线；1 出线（失电为进线） |
| rep\_loop\_num |  | 遥信点n路数编号，路数：0为总，1~127为第n路（失电为进线，第1路） |
| rep\_sig\_relate |  | 遥信点关联相位/开关 1字节  0 未知  1 A相  2 B相  3 C相  17-48：代表开关量输入1-31路  失电状态需要关联A/B/C三相；接触器状态、节能档位、中间继电器状态、门磁需要关联接入开关量号； |
|  |  |  | rep\_sig\_pha |  | 接触器电流相位，只有当类型为2接触器状态时才有这个字段  0 三相总  1 A相  2 B相  3 C相 |
| {"msg\_tpv":{"sec":32,"delay":2,"min":53,"hour":8,"pfc":98,"day":22},"msg\_pseq":2,"msg\_frame":3,"msg\_content":[{"conf\_sig\_n":40,"an\_st":0,"cmd":"dsignparam","pn":0,"romote\_point":[{"point\_num":0,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":1,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":2,"rep\_sig\_relate":18,"rep\_sig\_pha":2,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":3,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":4,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":5,"rep\_sig\_relate":19,"rep\_sig\_pha":3,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":6,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":7,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":8,"rep\_sig\_relate":20,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":9,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":10,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":11,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":5},{"point\_num":12,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":5},{"point\_num":13,"rep\_sig\_relate":22,"rep\_sig\_pha":3,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":14,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":15,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":16,"rep\_sig\_relate":23,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":17,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":18,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":19,"rep\_sig\_relate":24,"rep\_sig\_pha":2,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":20,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":21,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":22,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":9},{"point\_num":23,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":9},{"point\_num":24,"rep\_sig\_relate":26,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":25,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":26,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":27,"rep\_sig\_relate":1,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":28,"rep\_sig\_relate":2,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":29,"rep\_sig\_relate":3,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":30,"rep\_sig\_relate":28,"rep\_sig\_type":6,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":31,"rep\_sig\_type":10},{"point\_num":32,"rep\_sig\_type":10},{"point\_num":33,"rep\_sig\_type":10},{"point\_num":34,"rep\_sig\_type":10},{"point\_num":35,"rep\_sig\_type":10},{"point\_num":36,"rep\_sig\_type":10},{"point\_num":37,"rep\_sig\_type":10},{"point\_num":38,"rep\_sig\_type":10},{"point\_num":39,"rep\_sig\_type":10}]}],"msg\_afn":4,"msg\_con":1,"msg\_dev\_type":3,"msg\_uid":"0000000000010823","msg\_frm":1} | | | | | |

**遥信量通信参数设置确认报文同04功能码一类确认**

### 模拟量参数设置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  模拟量通信参数 | “analogparam” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | conf\_an\_n |  | 本次配置的模拟量个数 1字节 | 3 |
|  | an\_st |  | 起始模拟量号  1字节 | 1 |
| an\_point [n] | point\_num |  | 模拟量编号 | 1 |
| an\_ena |  | 模拟量n启用标志 1字节  0 启用 1停用 | 0 |
| an\_type |  | 模拟量n类型: 1字节  0 未知；  1 电压；  2电流；  3有功功率；  4无功功率；  5功率因数；  6 频率；  7 相角；  8 照度;  9 漏电流 | 1 |
| an\_sig\_flag |  | 进出线标志：0 进线；1 出线 | 1（类型电压.频率为进线，写0） |
| an\_loop\_num |  | 电表号 | 1（类型电压频率，该值写1） |
| an\_pha |  | 模拟量n相位 1字节  0 未知  1 A相  2 B相  3 C相 | 1 |
| an\_cir\_sn |  | 模拟量回路号  对应于控制回路号，通过该参数的配置，精确明确出线与控制回路之间的关系，当模拟量路数及进出线表示进线时，模拟量n对应控制回路号定义为0 | 0（类型电压频率，控制回路写0） |
| an\_gain |  | 互感器变比 | **变比不启用填1** |
| an\_warm\_h |  | 模拟量n上限报警值 10-3--104 | **限值不启用全部填0** |
| an\_warm\_l |  | 模拟量n下限报警值10-3--104 | **限值不启用全部填0** |
| an\_safe\_h |  | 模拟量n上限保护值10-3--104 | **限值不启用全部填0** |
| an\_safe\_l |  | 模拟量n下限保护值10-3--104 | **限值不启用全部填0** |
| {"msg\_tpv":{"sec":32,"delay":2,"min":53,"hour":8,"pfc":98,"day":22},"msg\_pseq":2,"msg\_frame":3,"msg\_content":[{"conf\_sig\_n":40,"an\_st":0,"cmd":"dsignparam","pn":0,"romote\_point":[{"point\_num":0,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":1,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":2,"rep\_sig\_relate":18,"rep\_sig\_pha":2,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":3,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":4,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":2},{"point\_num":5,"rep\_sig\_relate":19,"rep\_sig\_pha":3,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":6,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":7,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":3},{"point\_num":8,"rep\_sig\_relate":20,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":9,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":10,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":4},{"point\_num":11,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":5},{"point\_num":12,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":5},{"point\_num":13,"rep\_sig\_relate":22,"rep\_sig\_pha":3,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":14,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":15,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":6},{"point\_num":16,"rep\_sig\_relate":23,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":17,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":18,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":7},{"point\_num":19,"rep\_sig\_relate":24,"rep\_sig\_pha":2,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":20,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":21,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":8},{"point\_num":22,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":9},{"point\_num":23,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":9},{"point\_num":24,"rep\_sig\_relate":26,"rep\_sig\_pha":1,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":25,"rep\_sig\_relate":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":26,"rep\_sig\_relate":0,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":10},{"point\_num":27,"rep\_sig\_relate":1,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":28,"rep\_sig\_relate":2,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":29,"rep\_sig\_relate":3,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1},{"point\_num":30,"rep\_sig\_relate":28,"rep\_sig\_type":6,"rep\_sig\_flag":1,"rep\_loop\_num":1},{"point\_num":31,"rep\_sig\_type":10},{"point\_num":32,"rep\_sig\_type":10},{"point\_num":33,"rep\_sig\_type":10},{"point\_num":34,"rep\_sig\_type":10},{"point\_num":35,"rep\_sig\_type":10},{"point\_num":36,"rep\_sig\_type":10},{"point\_num":37,"rep\_sig\_type":10},{"point\_num":38,"rep\_sig\_type":10},{"point\_num":39,"rep\_sig\_type":10}]}],"msg\_afn":4,"msg\_con":1,"msg\_dev\_type":3,"msg\_uid":"0000000000010823","msg\_frm":1} | | | | | |

**模拟量通信参数设置确认同04功能码一类确认**

**备注：模拟量路数只的是某个类型下的第几路，模拟量为电流。下面的第2路**

**回路号指的是控制输出的回路号，其目的是精确关联控制回路与测量回路**

**就如第1路电流的互感器是接在第2路控制输出下的，那么第一路电流受第2路控制输出，所以要把第1路电流关联到第2个控制回路**

### 设置终端停运投运参数（预留扩展功能）

**PS：设备端未实现该功能，回路默认都是投运的**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  16388(f47) | “runenable” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | cir\_flag |  | 下发投运的回路，不发的为停运（设备端回路不可操作）  字符串类型 | "1,2,3" |
| {  "msg\_tpv": {  "sec": 14,  "delay": 2,  "min": 41,  "hour": 11,  "pfc": 185,  "day": 21  },  "msg\_pseq": 9,  "msg\_frame": 3,  "msg\_content": [  {  "cir\_flag": "1,2,3",  "cmd": "runenable",  "pn": 0  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

**设置终端停运投运参数确认同04功能码一类确认**

### 控制器多时段开关灯参数设置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  257(f9) | “setLampControlParam” |
|  | pn |  | 方案号  1~2040 | 1 |
|  | startDay |  | 起始日  日-月-年都为0时，每天都执行 | 1 |
|  | startMonth |  | 起始月  日-月-年都为0时，每天都执行 | 2 |
|  | startYear |  | 起始年  日-月-年都为0时，每天都执行 | 19 |
|  | continueDay |  | 持续时间 1字节  开关灯时段的持续时间，单位为天，最长31天，和起始年月日一起使用 | 1 |
|  | relayBitFlag |  | 继电器选择标志位  2字节  D0-D15表示对应1-16开关，对应位置1表示执行该方案. | 字符串类型“1，2，3，4，9” |
|  | outputTimeMoment |  | 输出时段数 1字节BIN格式  0清除所有时段数，1-4表示4个时段  正常时分为正常时刻,时分为99不动作 | 4 |
|  | outputTimeArray[n] | outputTimeNum | 输出时段第n段 | 1 |
| relayOnHour | 开启继电器时 | 1 |
| relayOnMinute | 开启继电器分 | 2 |
| relayOffHour | 断开继电器时 | 3 |
| relayOffMinute | 断开继电器分 | 5 |
| {  "msg\_tpv":{  "sec":46,  "delay":2,  "min":24,  "hour":10,  "pfc":243,  "day":6  },  "msg\_pseq":3,  "msg\_frame":3,  "msg\_content":[  {  "outputTimeMoment":1,  "relayBitFlag":"1,2,3,4,5,6",  "outputTimeArray":[  {  "outputTimeNum":1,  "relayOffMinute":5,  "relayOnMinute":55,  "relayOnHour":23,  "relayOffHour":0  }  ],  "startMonth":0,  "startDay":0,  "startYear":0,  "continueDay":31,  "cmd":"setLampControlParam",  "pn":1  }  ],  "msg\_afn":4,  "msg\_con":1,  "msg\_dev\_type":3,  "msg\_uid":"0000000000010823",  "msg\_frm":1  } | | | | | |

**控制器开关时间参数设置确认同04功能码确认一致**

### 设置终端事件配置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  1024(f3) | “setEventRecord” |
| pn |  | 0-65535  0(p0) | 0 |
| eventValid[n] | 存放整型数值 | 事件记录有效标志位  数组类型  数组0-63分别代表ERC1-ERC64所定义的事件，分别对应有需要的告警事件进行记录。  事件定义具体参考附录1。 | 4,5,13,20,21 （记录的事件下发，不记录的不下发） |
| eventSerious[n] | 存放整型数值 | 事件重要性等级标志  数组类型  数组0-63分别代表ERC1-ERC64所定义的事件，分别对应有重要的事件，该事件发生后，如通道具备主动上报应立即上报，如不具备应通过ACD位上报,如果没有相应标志代表一般性事件。  事件定义具体参考附录1。 | 4,5,13,20,21  （重要的事件下发，一般的不下发） |
| {  "msg\_tpv": {  "sec": 24,  "delay": 2,  "min": 40,  "hour": 11,  "pfc": 176,  "day": 21  },  "msg\_pseq": 0,  "msg\_frame": 3,  "msg\_content": [  {  "eventValid": [  1,  2,  3,  4,  5,  6,  7,  8,  9,  10,  11,  12,  13,  15,  16,  17,  18  ],  "eventSerious": [  1,  2,  3,  6,  7,  8,  9,  10,  11,  12,  13,  15,  16,  17,  18  ],  "cmd": "setEventRecord",  "pn": 0  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 控制器全年开关灯时间参数设置

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  257(f9) | “setLampYearParam” |
|  | pn |  | 方案号  1-2040 | 1 |
|  | usedFlag |  | 该方案是否使用标志  ’Y’：使用、’N’：不使用 | ’Y’/’N’ |
|  | relayBitFlag |  | 继电器选择标志位  2字节  D0-D15表示对应1-16开关，对应位置1表示执行该方案. | 字符串类型“1，2，3，4，9” |
|  | startDay |  | 起始日  日-月-年都为0时，每天都执行 | 1 |
|  | startMonth |  | 起始月  日-月-年都为0时，每天都执行 | 2 |
|  | continueDay |  | 持续时间 2字节  开关灯时段的持续时间，单位为天，按照366模型，始终含有2.29，终端在平年不执行2.29参数，和起始年月日一起使用 | 1 |
|  | outputTimeArray[n] | outputTimeNum | 第n天 | 1 |
| relayOnHour | 开启继电器时 | 1 |
| relayOnMinute | 开启继电器分 | 2 |
| relayOffHour | 断开继电器时 | 3 |
| relayOffMinute | 断开继电器分 | 5 |
| {"msg\_tpv":{"sec":9,"delay":2,"min":26,"hour":14,"pfc":249,"day":5},"msg\_pseq":9,"msg\_frame":3,"msg\_content":[{"relayBitFlag":"3,2,1","outputTimeArray":[{"outputTimeNum":1,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":2,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":3,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":4,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":5,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":6,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":7,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":8,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":9,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":10,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":11,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":12,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":13,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":14,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":15,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":16,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":17,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":18,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":19,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":20,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":21,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":22,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":23,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":24,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":25,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":26,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":27,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":28,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":29,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":30,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":31,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":32,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":33,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":34,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":35,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":36,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":37,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":38,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":39,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":40,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":41,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":42,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":43,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":44,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":45,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":46,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":47,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":48,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":49,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":50,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":51,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":52,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":53,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":54,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":55,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":56,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":57,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":58,"relayOffMinute":19,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":59,"relayOffMinute":20,"relayOnMinute":14,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":60,"relayOffMinute":20,"relayOnMinute":13,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":61,"relayOffMinute":21,"relayOnMinute":12,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":62,"relayOffMinute":22,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":63,"relayOffMinute":23,"relayOnMinute":11,"relayOnHour":18,"relayOffHour":7},{"outputTimeNum":64,"relayOffMinute":18,"relayOnMinute":15,"relayOnHour":18,"relayOffHour":7}],"startMonth":8,"startDay":28,"continueDay":64,"cmd":"setLampYearParam","usedFlag":"Y","pn":6}],"msg\_afn":4,"msg\_con":1,"msg\_dev\_type":3,"msg\_uid":"0000000000010902","msg\_frm":1} | | | | | |

### 设置全天开/关灯参数

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “setDayLampControl” |
|  | pn |  | 方案号  1-2040 | 1 |
|  | usedFlag |  | 是否启用 | Y’:启用、’N’:不启用 |
|  | type |  | 开灯/关灯 | 1:全天开灯， 2：全天关灯，  其他：无效 |
|  | relayBitFlag |  | 回路标识 | 字符串类型“1，2，3“” |
|  |  | startDay | 长期有效结束时间写80年后 | 起始日 | 1 |
|  |  | startMonth | 起始月 | 2 |
|  |  | startYear | 起始年 | 19 |
|  |  | endDay | 结束日 | 1 |
|  |  | endMonth | 结束月 | 2 |
|  |  | endYear | 结束年 | 19 |
| {  "msg\_tpv": {  "sec": 41,  "delay": 2,  "min": 41,  "hour": 9,  "pfc": 75,  "day": 21  },  "msg\_pseq": 11,  "msg\_frame": 3,  "msg\_content": [  {  "relayBitFlag": "3,6,2,4,5,1",  "startMonth": 1,  "startDay": 1,  "endDay": 1,  "startYear": 1,  "cmd": "setDayLampControl",  "usedFlag": "Y",  "type": 3,  "endMonth": 1,  "endYear": 1,  "pn": 1  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 设置外接电表参数

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “setGpmParam” |
|  | pn |  | 0-65535 0(p0) | 0 |
|  | gpmnum |  | 外接电表数量（1-5） | 1，（写0表示清除电表参数，不带后续数据） |
|  | datacycle |  | 电表数据上报周期 | 5，int（单位分钟，0表示不主动上报） |
|  | Gpmparams[A] | gpmno | 电表序号 | 1-5 |
|  | gpmmill | 电表品牌 | 字符串类型 |
|  |  | gpmaddr | 电表地址 | “180110080065”  电表上写的12位16进制字符串，如果位数不足，前面补“0” |
| {  "msg\_tpv": {  "sec": 34,  "delay": 1,  "min": 54,  "hour": 10,  "pfc": 61,  "day": 20  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "gpmnum": 1,  "Gpmparams": [  {  "gpmmill": "HL",  "gpmno": 3,  "gpmaddr": "000044545522"  }  ],  "cmd": "setGpmParam",  "pn": 0  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 设置连接方式（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f5) | “setConnectMode” |
|  | pn |  | 0-65535 0(p0) | 0 |
|  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |

### 设置连接参数

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn(f6) | “setConnectParamNew” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | 1byte 主用IP段1 | 192 |
|  | mip2 |  | 1byte 主用IP段2 | 168 |
|  | mip3 |  | 1byte 主用IP段3 | 16 |
|  | mip4 |  | 1byte 主用IP段4 | 90 |
|  | mport |  | 2bytes主用端口  0-65535 | 1000 |
|  | mapn |  | 16byte主用APN | “…..” |
|  | mvpn |  | 32 byte主用VPN | “…..”域名  ps：如果要用域名则mip1-mip4都填255 |
|  | bip1 |  | 1byte 备用IP段1 | 192 |
|  | bip2 |  | 1byte 备用IP段2 | 168 |
|  | bip3 |  | 1byte 备用IP段3 | 20 |
|  | bip4 |  | 1byte 备用IP段4 | 157 |
|  | bport |  | 2bytes备用端口 | 1050 |
|  | bapn |  | 16bytes备用APN | “…..” |
|  | bvpn |  | 32bytes备用VPN | “…..”域名 |
|  |  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |
| {  "msg\_tpv": {  "sec": 25,  "delay": 2,  "min": 52,  "hour": 9,  "pfc": 117,  "day": 22  },  "msg\_pseq": 5,  "msg\_frame": 3,  "msg\_content": [  {  "mapn": "rwerew",  "bip3": 200,  "bip4": 14,  "bip1": 192,  "bip2": 168,  "vpn\_pw": "",  "mip3": 228,  "mip2": 78,  "mip1": 103,  "mode": "gprs",  "mip4": 101,  "bapn": "",  "mvpn": "",  "mport": 12103,  "bport": 12005,  "cmd": "setConnectParamNew",  "bvpn": "",  "pn": 0  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 设置带APN连接参数

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn(f6) | “setConnectParamAPN” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | IP段1 | 192 |
|  | mip2 |  | IP段2 | 168 |
|  | mip3 |  | IP段3 | 16 |
|  | mip4 |  | IP段4 | 90 |
|  | mport |  | 端口0-65535 | 1000 |
|  | mapn |  | APN | 字符串（最长16字符） |
|  | mvpn |  | 32 byte VPN | “…..”域名  ps：如果要用域名则mip1-mip4都填255 |
|  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |
|  | user |  | APN用户名 | 字符串（最长16字符） |
|  | pwd |  | APN密码 | 字符串（最长32字符） |
| 备注：内容中出现”…”表示内容不定，且数量较大，无规律可循，不好表示，一般为长字符串。 | | | | | |
| {  "msg\_tpv": {  "sec": 25,  "delay": 2,  "min": 52,  "hour": 9,  "pfc": 117,  "day": 22  },  "msg\_pseq": 5,  "msg\_frame": 3,  "msg\_content": [  {  "mip1": 103,  "mip2": 78,  "mip3": 228,  "mip4": 101,  "mport": 12103,  "mapn": "1234123412341234",  "mvpn": "",  "mode": "gprs",  "user": "123456",  "pwd": "123456",  "cmd": "setConnectParamAPN",  "pn": 0  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 设置GPS信息

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn(f6) | “setGpsParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | enable |  | 数据有效位 | enable：有效  unable：无效，清除原有经纬度信息，不带之后数据 |
|  | longitude |  | 经度  float类型 | 5 |
|  | latitude |  | 纬度  float类型 | 10 |
| {  "msg\_tpv": {  "sec": 28,  "delay": 2,  "min": 55,  "hour": 16,  "pfc": 90,  "day": 1  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "enable": "enable",  "latitude": 30.669,  "cmd": "setGpsParam",  "pn": 0,  "longitude": 104.03  }  ],  "msg\_afn": 4,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 设置内置电表数据冻结时间

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn(f54) | “setGpmFrozenTime” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | hour |  | int | 时 |
|  | min |  | int | 分 |
| {  "msg\_uid":"0000000000010823",  "msg\_dev\_type":3,  "msg\_afn":4,  "msg\_frm":3,  "msg\_con":1,  "msg\_pseq":1,  "msg\_frame":3,  "msg\_acd":0,  "msg\_tpv":{  "day":10,  "hour":10,  "min":10,  "sec":10,  "delay":10,  "pfc":1  },  "msg\_content":[  {  "pn":0,  "hour":14,  "min":0,  "cmd":"setGpmFrozenTime"  }  ]  } | | | | | |

### 设置设备密码保护参数

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | Fn(f55) | “setPasswdParam” |
|  | pn |  | 0(p0) | 0 |
|  | enable |  | 是否启用  int类型 | 0：禁用  1：启用 |
|  | passwd |  | 密码  string类型 | “123456” |
| {  "msg\_uid":"0000000000010823",  "msg\_dev\_type":3,  "msg\_afn":4,  "msg\_frm":3,  "msg\_con":1,  "msg\_pseq":1,  "msg\_frame":3,  "msg\_acd":0,  "msg\_tpv":{  "day":10,  "hour":10,  "min":10,  "sec":10,  "delay":10,  "pfc":1  },  "msg\_content":[  {  "pn":0,  "enable":1,  "passwd":"123456",  "cmd":"setPasswdParam"  }  ]  } | | | | | |

## 功能码05

### 控制器遥控操作(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 :256(f1) | “remoteControl” |
|  | pn |  | Pn=0表示所有DO点号执行遥控操作，若Pn>0表示只对某个DO点号执行遥控操作 | 1 |
|  | controlType |  | 遥控类型  遥控类型 1字节  0开，1关，2 节能开关调档 | 0 |
|  | energyGear | 节能档位 1字节  节能开关档位：0~255 | 1 |
| {  "msg\_tpv": {  "sec": 0,  "delay": 2,  "min": 1,  "hour": 0,  "pfc": 151,  "day": 23  },  "msg\_pseq": 7,  "msg\_frame": 3,  "msg\_content": [  {  "controlType": 0,  "cmd": "remoteControl",  "energyGear": 0,  "pn": 1  },  {  "controlType": 0,  "cmd": "remoteControl",  "energyGear": 0,  "pn": 2  },  {  "controlType": 0,  "cmd": "remoteControl",  "energyGear": 0,  "pn": 3  }  ],  "msg\_afn": 5,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

**PS：**

**功能码0x05的协议回复统一回复确认，下面协议一样不在重复说明**

**确认协议格式具体参考对应确认协议章节说明**

### 对时命令/校时命令(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  16387(f31) | “adjustTimeControl” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | adjustSec |  | 对时 秒，1字节 | 30 |
|  | adjustMinute |  | 对时 分，1字节 | 30 |
|  | adjustHour |  | 对时 时，1字节 | 6 |
|  | adjustDay |  | 对时 日，1字节 | 3 |
|  | adjustWeek |  | 对时 星期，1字节  1-7代表星期一-星期日 | 0 |
|  | adjustMonth |  | 对时 月，1字节 | 3 |
|  | adjustYear |  | 对时 年，1字节 | 19 |
| {  "msg\_tpv": {  "sec": 0,  "delay": 2,  "min": 10,  "hour": 9,  "pfc": 154,  "day": 23  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "adjustYear": 21,  "adjustDay": 23,  "adjustHour": 9,  "adjustMonth": 12,  "cmd": "adjustTimeControl",  "adjustSec": 0,  "adjustMinute": 10,  "pn": 0,  "adjustWeek": 4  }  ],  "msg\_afn": 5,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

**对时命令确认报文同上确认回复一类**

### 清除回路保护标志(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F45) | “clearProtectFlag” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | clearFlag |  | 字符串 | 1-16个开关回路，表示要清除“1,2,3,4…” |
| {  "msg\_tpv": {  "sec": 19,  "delay": 2,  "min": 38,  "hour": 15,  "pfc": 215,  "day": 20  },  "msg\_pseq": 7,  "msg\_frame": 3,  "msg\_content": [  {  "clearFlag": "1,2,3,4,5,6",  "cmd": "clearProtectFlag",  "pn": 0  }  ],  "msg\_afn": 5,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

**清除回路保护标志确认报文同上确认回复一类**

### 设置回路保护标志(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F46) | “setProtectFlag” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | clearFlag |  | 字符串 | 1-16个开关回路，表示要设置“1,2,3,4…” |
| {  "msg\_tpv": {  "sec": 58,  "delay": 2,  "min": 45,  "hour": 19,  "pfc": 182,  "day": 20  },  "msg\_pseq": 6,  "msg\_frame": 3,  "msg\_content": [  {  "clearFlag": "1,2,3,4,5,6",  "cmd": "setProtectFlag",  "pn": 0  }  ],  "msg\_afn": 5,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

**设置回路保护标志确认报文同上确认回复一类**

### 清除事件记录（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | F48 | “clearEvent” |
|  | pn |  | 0(p0) | 0 |
|  |  | events[A] |  | 事件数组 |  |
|  |  |  | recCode | 事件记录代码  int类型 | 1 |
|  |  |  | 事件内容 | 具体参考下面表格，不同事件对应的字段个数和内容不一样 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 事件代码recCode | 事件项目 | 数据内容 | | |
| Name | description | Value |
| ERC3 | 交流接触器拒动记录 | remoPoint | 接触器点位 | 1 |
| ERC7 | 状态量变化记录 | remoPoint | 遥信点号 |  |
| remoType | 遥信量类型 | 1：失电  2：接触器状态  6：门磁 |
| ERC8 | 模拟量越限记录 | analogPoint | 模拟量点号 |  |
| ERC14 | 火零不平衡记录 | loopNum | 测量（电表）回路号,1-16 | 1 |
| ERC15 | 白天亮灯 | ercRelate | 相位，1-A; 2-B; 3-C | 1 |
| loopNum | 测量（电表）回路号,1-16 | 1 |
| ERC16 | 晚上熄灯 | ercRelate | 相位，1-A; 2-B; 3-C | 1 |
| loopNum | 测量（电表）回路号,1-16 | 1 |
| ERC17 | 接触器未释放 | remoPoint | 接触器点位 | 1 |
| ERC18 | 接触器断开 | remoPoint | 接触器点位 | 1 |
| {  "msg\_uid":"0000000000010823",  "msg\_dev\_type":3,  "msg\_afn":5,  "msg\_frm":3,  "msg\_con":1,  "msg\_pseq":1,  "msg\_frame":3,  "msg\_acd":0,  "msg\_tpv":{  },  "msg\_content":[  {  "events":[  {  "recCode":3,  "remoPoint":1  },  {  "recCode":7,  "remoPoint":1,  "remoType":6  }  ],  "cmd":"clearEvent",  "pn":0  }  ]  } | | | | |

## 功能码09

### 请求终端配置命令(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256(f1)  请求终端配置信息 | “requestTerminalConfig” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 50,  "delay": 2,  "min": 39,  "hour": 11,  "pfc": 173,  "day": 21  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "requestTerminalConfig",  "pn": 0  }  ],  "msg\_afn": 9,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 请求终端配置信息回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256(f1)  终端配置信息回复 | “requestTerminalConfig” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | manufactureNum |  | 厂商代号 4字节ASCII | “…” |
|  | deviceNum |  | 设备编号 4字节ASCII | “…” |
|  | softwareVer |  | 软件版本号 8字节ASCII | “…” |
|  | hardwareVer |  | 硬件版本号 8字节ASCII | “…” |
|  | softwarePublishDay |  | 终端软件发布日期:日 | 3 |
|  | softwarePublishMonth |  | 终端软件发布日期:月 | 3 |
|  | softwarePublishYear |  | 终端软件发布日期:年 | 19 |
|  | hardwarePublishDay |  | 终端硬件发布日期: 日 | 3 |
|  | hardwarePublishMonth |  | 终端硬件发布日期: 月 | 3 |
|  | hardwarePublishYear |  | 终端硬件发布日期: 年 | 19 |
|  | protocolVer |  | 通信协议版本号  4字节ASCII | “…” |
|  | deviceType |  | 设备型号 10字节ASCII | “…” |
|  | productDay |  | 出厂日期 日 | 3 |
|  | productMonth |  | 出厂日期 月 | 3 |
|  | productYear |  | 出厂日期 年 | 19 |
|  | installDay |  | 安装日期 日 | 3 |
|  | installMonth |  | 安装日期 月 | 3 |
|  | installYear |  | 安装日期 年 | 19 |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 9,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 173,  "sec": 50,  "min": 39,  "hour": 11,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "manufactureNum": "ZLXT",  "deviceNum": "1 ",  "softwareVer": "11997",  "protocolVer": "1",  "deviceType": "CC09-WuHan",  "hardwareVer": "1",  "softwarePublishDay": 9,  "softwarePublishMonth": 11,  "softwarePublishYear": 21,  "hardwarePublishDay": 20,  "hardwarePublishMonth": 5,  "hardwarePublishYear": 19,  "productDay": 20,  "productMonth": 5,  "productYear": 19,  "installDay": 20,  "installMonth": 5,  "installYear": 19,  "cmd": "requestTerminalConfig"  }  ]  } | | | | | |

## 功能码0A

### 查询遥信量分类(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 259(f25)  遥信量分类参数查询 | “dsignquery” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | qsig\_n |  | 本次查询的遥信点个数 1字节 | 3 |
|  | qsig\_st |  | 起始遥信点号  1字节 | 0 |
| {  "msg\_tpv": {  "sec": 54,  "delay": 2,  "min": 52,  "hour": 8,  "pfc": 97,  "day": 22  },  "msg\_pseq": 1,  "msg\_frame": 3,  "msg\_content": [  {  "qsig\_st": 0,  "qsig\_n": 34,  "cmd": "dsignquery",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 查询遥信量分类回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  259(f25)  遥信量参数回复 | “dsignquery” |
| pn |  | 0-65535  0(p0) | 0 |
| qsig\_n |  | 本次配置的遥信点个数 1字节 | 3 |
| qsig\_st |  | 起始遥信点号  1字节 | 0 |
| romote\_point [n] | point\_num |  | 遥信点编号 |
| rep\_sig\_type |  | 遥信点类型: 1字节  0开关 1失电  2接触器状态  3节能档位状态  4继电器状态  5手动开关状态  6门磁  7输出状态  0x0A 禁用 |
| rep\_sig\_flag |  | 进出线标志：0 进线；1 出线 |
| rep\_loop\_num |  | 遥信点n路数编号，路数：0为总，1~127为第n路 |
| rep\_sig\_relate |  | 遥信点关联相位/开关 1字节  0 未知  1 A相  2 B相  3 C相  17-48：代表开关量输入1-31路 |
|  |  |  | rep\_sig\_pha |  | 接触器电流相位，只有当类型为2接触器状态时才有这个字段  0 三相总  1 A相  2 B相  3 C相 |
| {"msg\_uid":"0000000000010823","msg\_dev\_type":3,"host":"172.31.0.26","port":"12104","msg\_afn":10,"msg\_frm":0,"msg\_con":0,"msg\_pseq":7,"msg\_frame":3,"event\_serious":1,"event\_common":0,"msg\_acd":1,"msg\_tpv":{"pfc":103,"sec":53,"min":53,"hour":8,"day":22,"delay":2},"msg\_content":[{"rep\_sig\_n":31,"rep\_sig\_st":0,"romote\_point":[{"point\_num":0,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":1,"rep\_sig\_relate":0},{"point\_num":1,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":1,"rep\_sig\_relate":0},{"point\_num":2,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":2,"rep\_sig\_relate":18,"rep\_sig\_pha":2},{"point\_num":3,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":2,"rep\_sig\_relate":0},{"point\_num":4,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":2,"rep\_sig\_relate":0},{"point\_num":5,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":3,"rep\_sig\_relate":19,"rep\_sig\_pha":3},{"point\_num":6,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":3,"rep\_sig\_relate":0},{"point\_num":7,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":3,"rep\_sig\_relate":0},{"point\_num":8,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":4,"rep\_sig\_relate":20,"rep\_sig\_pha":1},{"point\_num":9,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":4,"rep\_sig\_relate":0},{"point\_num":10,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":4,"rep\_sig\_relate":0},{"point\_num":11,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":5,"rep\_sig\_relate":0},{"point\_num":12,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":5,"rep\_sig\_relate":0},{"point\_num":13,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":6,"rep\_sig\_relate":22,"rep\_sig\_pha":3},{"point\_num":14,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":6,"rep\_sig\_relate":0},{"point\_num":15,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":6,"rep\_sig\_relate":0},{"point\_num":16,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":7,"rep\_sig\_relate":23,"rep\_sig\_pha":1},{"point\_num":17,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":7,"rep\_sig\_relate":0},{"point\_num":18,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":7,"rep\_sig\_relate":0},{"point\_num":19,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":8,"rep\_sig\_relate":24,"rep\_sig\_pha":2},{"point\_num":20,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":8,"rep\_sig\_relate":0},{"point\_num":21,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":8,"rep\_sig\_relate":0},{"point\_num":22,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":9,"rep\_sig\_relate":0},{"point\_num":23,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":9,"rep\_sig\_relate":0},{"point\_num":24,"rep\_sig\_type":2,"rep\_sig\_flag":1,"rep\_loop\_num":10,"rep\_sig\_relate":26,"rep\_sig\_pha":1},{"point\_num":25,"rep\_sig\_type":5,"rep\_sig\_flag":1,"rep\_loop\_num":10,"rep\_sig\_relate":0},{"point\_num":26,"rep\_sig\_type":7,"rep\_sig\_flag":1,"rep\_loop\_num":10,"rep\_sig\_relate":0},{"point\_num":27,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1,"rep\_sig\_relate":1},{"point\_num":28,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1,"rep\_sig\_relate":2},{"point\_num":29,"rep\_sig\_type":1,"rep\_sig\_flag":0,"rep\_loop\_num":1,"rep\_sig\_relate":3},{"point\_num":30,"rep\_sig\_type":6,"rep\_sig\_flag":1,"rep\_loop\_num":1,"rep\_sig\_relate":28}],"cmd":"dsignquery"}]} | | | | | |

### 查询模拟量分类限值(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 513(f26)  模拟量限值参数查询 | “analogquery” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | query\_ana\_n |  | 本次查询的模拟量个数 1字节 | 3 |
|  | query\_ana\_st |  | 起始模拟量号  1字节 | 1 |
| {  "msg\_tpv": {  "sec": 53,  "delay": 2,  "min": 52,  "hour": 8,  "pfc": 96,  "day": 22  },  "msg\_pseq": 0,  "msg\_frame": 3,  "msg\_content": [  {  "query\_ana\_st": 0,  "cmd": "analogquery",  "pn": 0,  "query\_ana\_n": 44  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 查询模拟量分类限值回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 | cmd |  |  | 0-65535  模拟量通信参数  513(f26) | “analogquery” |
| pn |  |  | 0-65535  0(p0) | 0 |
| conf\_an\_n |  |  | 本次配置的模拟量个数 | 3 |
| an\_st |  |  | 起始模拟量号 | 1 |
| an\_point [n] | point\_num |  | 模拟量编号 | 0 |
| an\_ena |  | 模拟量n启用标志 0 启用 1停用 | 0 |
| an\_type |  | 模拟量n类型:  0 未知；  1 电压；  2电流；  3有功功率；  4无功功率；  5功率因数；  6 频率；  7 相角；  8 照度;  9 漏电流 | 1 |
| an\_sig\_flag |  | 进出线标志  0进线, 1出线 | 1 |
| an\_loop\_num |  | 模拟量n路数  0为总，其它为第n路 | 1 |
| an\_pha |  | 模拟量n相位  0 未知  1 A相  2 B相  3 C相 | 1 |
| an\_cir\_sn |  | 模拟量回路号  对应于控制回路号，通过该参数的配置，精确明确出线与控制回路之间的关系，当模拟量路数及进出线表示进线时，模拟量n对应控制回路号定义为0 | 0 |
| an\_gain |  | 互感器变比 2字节 | 100 |
| an\_warm\_h |  | 模拟量n上限报警值  10-3--104 | 260 |
| an\_warm\_l |  | 模拟量n下限报警值  10-3--104 | 180 |
| an\_safe\_h |  | 模拟量n上限保护值  10-3--104 | 260 |
| an\_safe\_l |  | 模拟量n下限保护值  10-3--104 | 180 |
| {"msg\_uid":"0000000000010823","msg\_dev\_type":3,"host":"172.31.0.26","port":"12104","msg\_afn":10,"msg\_frm":0,"msg\_con":0,"msg\_pseq":2,"msg\_frame":1,"msg\_acd":0,"msg\_tpv":{"pfc":96,"sec":53,"min":52,"hour":8,"day":22,"delay":2},"msg\_content":[{"conf\_an\_n":4,"an\_st":40,"an\_point":[{"point\_num":40,"an\_ena":0,"an\_type":2,"an\_sig\_flag":1,"an\_loop\_num":4,"an\_pha":1,"an\_cir\_sn":10,"an\_gain":20,"an\_warm\_h":0,"an\_warm\_l":0,"an\_safe\_h":0,"an\_safe\_l":0},{"point\_num":41,"an\_ena":0,"an\_type":3,"an\_sig\_flag":1,"an\_loop\_num":4,"an\_pha":1,"an\_cir\_sn":10,"an\_gain":20,"an\_warm\_h":0,"an\_warm\_l":0,"an\_safe\_h":0,"an\_safe\_l":0},{"point\_num":42,"an\_ena":0,"an\_type":4,"an\_sig\_flag":1,"an\_loop\_num":4,"an\_pha":1,"an\_cir\_sn":10,"an\_gain":20,"an\_warm\_h":0,"an\_warm\_l":0,"an\_safe\_h":0,"an\_safe\_l":0},{"point\_num":43,"an\_ena":0,"an\_type":5,"an\_sig\_flag":1,"an\_loop\_num":4,"an\_pha":1,"an\_cir\_sn":10,"an\_gain":1,"an\_warm\_h":0,"an\_warm\_l":0,"an\_safe\_h":0,"an\_safe\_l":0}],"cmd":"analogquery"}]} | | | | | |

### 查询控制器开关灯时间参数(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(F9)  开关灯时间参数查询 | “queryLampControlParam” |
|  | pn |  | 方案号  1~2040 | 1 |
| {  "msg\_tpv": {  "sec": 12,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 60,  "day": 21  },  "msg\_pseq": 12,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryLampControlParam",  "pn": 1  },  {  "cmd": "queryLampControlParam",  "pn": 2  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询控制器开关灯时间参数回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9) | “queryLampControlParam” |
|  | pn |  | 方案号  1~2040 | 1 |
|  | startDay |  | 起始日  日-月-年都为0时，每天都执行 | 1 |
|  | startMonth |  | 起始月  日-月-年都为0时，每天都执行 | 2 |
|  | startYear |  | 起始年  日-月-年都为0时，每天都执行 | 19 |
|  | continueDay |  | 持续时间 1字节  开关灯时段的持续时间，单位为天，最长31天，和起始年月日一起使用 | 1 |
|  | relayBitFlag |  | 继电器选择标志位  2字节  D0-D15表示对应1-16开关，对应位置1表示执行该方案. | 字符串类型“1，2，3，4，9” |
|  | outputTimeMoment |  | 输出时段数 1字节BIN格式  0清除所有时段数，1-4表示4个时段  正常时分为正常时刻,时分为99不动作 | 4 |
|  | outputTimeArray[n] | outputTimeNum | 输出时段第n段 | 1 |
| relayOnHour | 开启继电器时 | 1 |
| relayOnMinute | 开启继电器分 | 2 |
| relayOffHour | 断开继电器时 | 3 |
| relayOffMinute | 断开继电器分 | 5 |
| {  "msg\_uid": "0000000000010984",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 12,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 60,  "sec": 12,  "min": 21,  "hour": 9,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 1,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "continueDay": 0,  "relayBitFlag": "",  "outputTimeMoment": 0,  "cmd": "queryLampControlParam"  },  {  "pn": 2,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "continueDay": 0,  "relayBitFlag": "",  "outputTimeMoment": 0,  "cmd": "queryLampControlParam"  }  ]  } | | | | | |

### 查询通信参数(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1)查询通信参数 | “queryCommParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 17,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 62,  "day": 21  },  "msg\_pseq": 14,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryCommParam",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询通信参数回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryCommParam” |
|  | pn |  | 0-65535 0(p0) |  |
|  | timeout |  | 确认超时时间（秒） | 值范围：0-15 |
| retry |  | 重发次数 D12-D13:重发次数 | 值范围：0-3 |
| conf |  | 通信确认  1字节,相应位置1表示需要主站确认。  D0:实时数据确认位  D1:历史数据确认位  D2:事件记录确认位  D3-D7:备用 | 1 写死7 |
|  | beatcycle |  | 心跳周期  单位:min | 5 |
|  | rtdatacycle |  | 实时数据上报周期  单位:min | 2 |
| hisdatacycle |  | 历史数据上报周期  单位:min | 10 |
| {  "msg\_uid": "0000000000010984",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 14,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 62,  "sec": 17,  "min": 21,  "hour": 9,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "conf": 7,  "timeout": 15,  "retry": 3,  "rtdatacycle": 240,  "hisdatacycle": 240,  "beatcycle": 1,  "cmd": "queryCommParam"  }  ]  } | | | | | |

### 查询连接地址和端口设置(下行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f2) | “queryConnectParam” |
|  | pn |  | 0-65535  0(p0) | 0 |

### 查询连接地址和端口参数回复(上行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512(f2) | “queryConnectParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | 1byte 主用IP段1 | 192 |
|  | mip2 |  | 1byte 主用IP段2 | 168 |
|  | mip3 |  | 1byte 主用IP段3 | 16 |
|  | mip4 |  | 1byte 主用IP段4 | 90 |
|  | mport |  | 2bytes主用端口  0-65535 | 1000 |
|  | mapn |  | 16byte主用APN | “…..” |
|  | mvpn |  | 32 byte主用VPN | “…..”域名 |
|  | bip1 |  | 1byte 备用IP段1 | 192 |
|  | bip2 |  | 1byte 备用IP段2 | 168 |
|  | bip3 |  | 1byte 备用IP段3 | 20 |
|  | bip4 |  | 1byte 备用IP段4 | 157 |
|  | bport |  | 2bytes备用端口  0-65535 | 1050 |
|  | bapn |  | 16bytes备用APN | “…..” |
|  | bvpn |  | 32bytes备用VPN | “…..”域名 |
| 备注：内容中出现”…”表示内容不定，且数量较大，无规律可循，不好表示，一般为长字符串。 | | | | | |

### 查询终端停运/投运参数(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 16388(f47) | “queryRunParam” |
|  | pn |  | 0-65535 pn(0) | 0 |
| {  "msg\_tpv": {  "sec": 32,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 65,  "day": 21  },  "msg\_pseq": 1,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryRunParam",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询终端停运/投运参数回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 16388(f47) | “queryRunParam” |
|  | pn |  | 0-65535 pn(0) | 0 |
|  | cir\_flag |  | 回路标识  投运的回路 | 字符串类型“1，2，3，4，9” |
| {  "msg\_uid": "0000000000010984",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 1,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 65,  "sec": 32,  "min": 21,  "hour": 9,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "cir\_flag": "1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,",  "cmd": "queryRunParam"  }  ]  } | | | | | |

### 查询终端事件配置(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 1024(f3) | “queryEventRecord” |
|  | pn |  | 0-65535 | 0 |
| {  "msg\_tpv": {  "sec": 37,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 66,  "day": 21  },  "msg\_pseq": 2,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryEventRecord",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询终端事件配置回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  1024(f3) | “queryEventRecord” |
| pn |  | 0-65535  0(p0) | 0 |
| eventValid[n] | 存放整型数值 | 事件记录有效标志位  数组类型  数组0-63分别代表ERC1-ERC64所定义的事件，分别对应有需要的告警事件进行记录。 | 4,5,13,20,21 |
| eventSerious[n] | 存放整型数值 | 事件重要性等级标志  数组类型  数组0-63分别代表ERC1-ERC64所定义的事件，分别对应有重要的事件，该事件发生后，如通道具备主动上报应立即上报，如不具备应通过ACD位上报,如果没有相应标志代表一般性事件。 | 4,5,13,20,21 |
|  |  | autoReport[n] | 存放整型数值 | 记录主动上报的事件，0-63分别代表ERC1-ERC64所定义的事件。 | 4,5,13,20,21 |
| {  "msg\_uid":"0000000000010984",  "msg\_dev\_type":3,  "host":"172.31.0.26",  "port":"12104",  "msg\_afn":10,  "msg\_frm":0,  "msg\_con":0,  "msg\_pseq":2,  "msg\_frame":3,  "msg\_acd":0,  "msg\_tpv":{  "pfc":66,  "sec":37,  "min":21,  "hour":9,  "day":21,  "delay":2  },  "msg\_content":[  {  "pn":0,  "eventValid":[  2,  3,  4,  5,  6,  7,  8,  9,  10,  11,  12,  13,  15,  16,  17,  18  ],  "eventSerious":[  4,  7,  8,  15,  16,  17,  18  ],  "autoReport":[  4,  7,  8,  15,  16,  17,  18  ],  "cmd":"queryEventRecord"  }  ]  } | | | | | |

### 查询控制器全年开关灯时间参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9) | “queryLampYearParam” |
|  | pn |  | 方案号  1~2040 | 1 |
|  |  | startDay |  | 起始日  日-月-年都为0时，每天都执行 | 1 |
|  |  | startMonth |  | 起始月  日-月-年都为0时，每天都执行 | 1 |
|  |  | continueDay |  | 持续时间 2字节  开关灯时段的持续时间，单位为天，最长366天，和起始年月日一起使用 | 1 |
| {  "msg\_tpv": {  "sec": 5,  "delay": 2,  "min": 33,  "hour": 10,  "pfc": 251,  "day": 21  },  "msg\_pseq": 11,  "msg\_frame": 3,  "msg\_content": [  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 1  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 2  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 3  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 4  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 5  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 6  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 7  },  {  "startMonth": 12,  "startDay": 19,  "continueDay": 8,  "cmd": "queryLampYearParam",  "pn": 8  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 查询控制器全年开关灯时间参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9) | “queryLampYearParam” |
|  | pn |  | 方案号  1~2040 | 1 |
|  | usedFlag |  | 该方案是否使用标志  ’Y’：使用、’N’：不使用 | ’Y’/’N’ |
|  | relayBitFlag |  | 继电器选择标志位  2字节  D0-D15表示对应1-16开关，对应位置1表示执行该方案. | 字符串类型“1，2，3，4，9” |
|  | startDay |  | 起始日  日-月-年都为0时，每天都执行 | 1 |
|  | startMonth |  | 起始月  日-月-年都为0时，每天都执行 | 2 |
|  | continueDay |  | 持续时间 2字节  开关灯时段的持续时间，单位为天，366模型，和起始年月日一起使用 | 1 |
|  | outputTimeArray[n] | outputTimeNum | 第n天 | 1 |
| relayOnHour | 开启继电器时 | 1 |
| relayOnMinute | 开启继电器分 | 2 |
| relayOffHour | 断开继电器时 | 3 |
| relayOffMinute | 断开继电器分 | 5 |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 11,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 251,  "sec": 5,  "min": 33,  "hour": 10,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 1,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 2,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 3,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 4,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 5,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 6,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 7,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  },  {  "pn": 8,  "usedFlag": "N",  "startDay": 19,  "startMonth": 12,  "continueDay": 8,  "relayBitFlag": "",  "outputTimeArray": [],  "cmd": "queryLampYearParam"  }  ]  } | | | | | |

### 查询全天开/关灯参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryDayLampControl” |
|  | pn |  | 方案号  1~2040 | 1 |
| {  "msg\_tpv": {  "sec": 49,  "delay": 2,  "min": 59,  "hour": 15,  "pfc": 210,  "day": 17  },  "msg\_pseq": 2,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryDayLampControl",  "pn": 1  },  {  "cmd": "queryDayLampControl",  "pn": 2  },  {  "cmd": "queryDayLampControl",  "pn": 3  },  {  "cmd": "queryDayLampControl",  "pn": 4  },  {  "cmd": "queryDayLampControl",  "pn": 5  },  {  "cmd": "queryDayLampControl",  "pn": 6  },  {  "cmd": "queryDayLampControl",  "pn": 7  },  {  "cmd": "queryDayLampControl",  "pn": 8  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010902",  "msg\_frm": 1  } | | | | | |

### 查询全天开/关灯参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryDayLampControl” |
|  | pn |  | 方案号  1~2040 | 1 |
|  | usedFlag |  | 是否启用 | ‘Y’:启用、’N’:不启用 |
|  | type |  | 开灯/关灯 | 1:全天开灯， 2：全天关灯， 其他：无效 |
|  | relayBitFlag |  | 回路标识 | 字符串类型“1，2，3“” |
|  |  | startDay | 长期有效结束时间80年后 | 起始日 | 1 |
|  |  | startMonth | 起始月 | 2 |
|  |  | startYear | 起始年 | 19 |
|  |  | endDay | 结束日 | 1 |
|  |  | endMonth | 结束月 | 2 |
|  |  | endYear | 结束年 | 19 |
| {  "msg\_uid": "0000000000010902",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 2,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 210,  "sec": 49,  "min": 59,  "hour": 15,  "day": 17,  "delay": 2  },  "msg\_content": [  {  "pn": 1,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 2,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 3,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 4,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 5,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 6,  "usedFlag": "Y",  "startDay": 14,  "startMonth": 12,  "startYear": 21,  "startDay": 14,  "startMonth": 12,  "startYear": 101,  "relayBitFlag": "",  "type": 1,  "cmd": "queryDayLampControl"  },  {  "pn": 7,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  },  {  "pn": 8,  "usedFlag": "N",  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "startDay": 0,  "startMonth": 0,  "startYear": 0,  "relayBitFlag": "",  "type": 208,  "cmd": "queryDayLampControl"  }  ]  } | | | | | |

### 查询外接电表参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryGpmParam” |
|  | pn |  | 0-65535 0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 57,  "delay": 1,  "min": 7,  "hour": 11,  "pfc": 44,  "day": 8  },  "msg\_pseq": 12,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryGpmParam",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 查询外接电表参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryGpmParam” |
|  | pn |  | 0-65535 0(p0) | 0 |
|  | datacycle |  | 电表数据上报周期 （单位分钟，0表示不主动上报） | 5 |
|  | gpmnum |  | 外接电表数量（1-5） | 1 |
|  | Gpmparams[A] | gpmno | 电表序号 | 1-5 |
|  | gpmmill | 电表品牌 | 字符串 |
|  |  | gpmaddr | 电表地址 | “180110080065”  电表上写的12位16进制字符串，如果位数不足，前面补“0” |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 12,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 44,  "sec": 57,  "min": 7,  "hour": 11,  "day": 8,  "delay": 1  },  "msg\_content": [  {  "pn": 0,  "gpmnum": 2,  "Gpmparams": [  {  "gpmno": 1,  "gpmmill": "DL/T-20",  "gpmaddr": "000044922452"  },  {  "gpmno": 2,  "gpmmill": "DL/T-20",  "gpmaddr": "000000000001"  }  ],  "datacycle": 0,  "cmd": "queryGpmParam"  }  ]  } | | | | | |

### 查询连接方式（下行报文）（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f5) | “queryConnectMode” |
|  | pn |  | 0-65535 0(p0) | 0 |

### 查询连接方式（上行报文）（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f1) | “queryConnectMode” |
|  | pn |  | 0-65535 0(p0) | 0 |
|  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |

### 查询连接参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f6) | “queryConnectParamNew” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 12,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 61,  "day": 21  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryConnectParamNew",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询连接参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512(f6) | “queryConnectParamNew” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | 1byte 主用IP段1 | 192 |
|  | mip2 |  | 1byte 主用IP段2 | 168 |
|  | mip3 |  | 1byte 主用IP段3 | 16 |
|  | mip4 |  | 1byte 主用IP段4 | 90 |
|  | mport |  | 2bytes主用端口  0-65535 | 1000 |
|  | mapn |  | 16byte主用APN | “…..” |
|  | mvpn |  | 32 byte主用VPN | “…..”域名 |
|  | bip1 |  | 1byte 备用IP段1 | 192 |
|  | bip2 |  | 1byte 备用IP段2 | 168 |
|  | bip3 |  | 1byte 备用IP段3 | 20 |
|  | bip4 |  | 1byte 备用IP段4 | 157 |
|  | bport |  | 2bytes备用端口  0-65535 | 1050 |
|  | bapn |  | 16bytes备用APN | “…..” |
|  | bvpn |  | 32bytes备用VPN | “…..”域名 |
|  |  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |
| 备注：内容中出现”…”表示内容不定，且数量较大，无规律可循，不好表示，一般为长字符串。 | | | | | |
| {  "msg\_uid": "0000000000010984",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 61,  "sec": 12,  "min": 21,  "hour": 9,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "mip1": 103,  "mip2": 78,  "mip3": 228,  "mip4": 93,  "mport": 12103,  "mapn": "",  "mvpn": "",  "bip1": 103,  "bip2": 78,  "bip3": 228,  "bip4": 93,  "bport": 12103,  "bapn": "",  "bvpn": "",  "mode": "gprs",  "cmd": "queryConnectParamNew"  }  ]  } | | | | | |

### 查询带APN连接参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f6) | “queryConnectParamAPN” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 12,  "delay": 2,  "min": 21,  "hour": 9,  "pfc": 61,  "day": 21  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryConnectParamAPN",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 查询带APN连接参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512(f6) | “queryConnectParamAPN” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | mip1 |  | 1byte IP段1 | 192 |
|  | mip2 |  | 1byte IP段2 | 168 |
|  | mip3 |  | 1byte IP段3 | 16 |
|  | mip4 |  | 1byte IP段4 | 90 |
|  | mport |  | 2bytes 端口  0-65535 | 1000 |
|  | mapn |  | 16byte APN | “…..”字符串 |
|  | mvpn |  | 32 byte VPN | “…..”域名 |
|  | mode |  | 连接方式 | eth：以太网  gprs：4G-gprs网络 |
|  | user |  | APN用户名 | 字符串 |
|  | pwd |  | APN密码 | 字符串 |
| {  "msg\_uid": "0000000000010984",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {  "pfc": 61,  "sec": 12,  "min": 21,  "hour": 9,  "day": 21,  "delay": 2  },  "msg\_content": [  {  "mip1": 103,  "mip2": 78,  "mip3": 228,  "mip4": 101,  "mport": 12103,  "mapn": "1234123412341234",  "mvpn": "",  "mode": "gprs",  "user": "123456",  "pwd": "123456",  "cmd": "queryConnectParamAPN",  "pn": 0  }  ]  } | | | | | |

### 查询经纬度开关灯时间（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f6) | “queryGpsParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 58,  "delay": 2,  "min": 13,  "hour": 12,  "pfc": 175,  "day": 16  },  "msg\_pseq": 15,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryGpsParam",  "pn": 0  }  ],  "msg\_afn": 10,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 查询经纬度开关灯时间（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 512(f6) | “queryGpsParam” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | enable |  | 数据有效位 | enable：有效  unable：无效，不带之后数据 |
|  | longitude |  | 经度 | string类型 |
|  | latitude |  | 纬度 | string类型 |
|  |  | relayOnHour |  | 开灯时间，时 | 1 |
|  |  | relayOnMinute |  | 开灯时间，分 | 2 |
|  |  | relayOffHour |  | 关灯时间，时 | 3 |
|  |  | relayOffMinute |  | 关灯时间，分 | 5 |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 15,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 175,  "sec": 58,  "min": 13,  "hour": 12,  "day": 16,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "enable": "enable",  "longitude": "104.030176",  "latitude": "30.669961",  "relayOnHour": 18,  "relayOnMinute": 4,  "relayOffHour": 7,  "relayOffMinute": 54,  "cmd": "queryGpsParam"  }  ]  } | | | | | |

### 查询内置电表数据冻结时间（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | f54 | “queryGpmFrozenTime” |
|  | pn |  | (p0) | 0 |
| {  "msg\_tpv":{  "sec":58,  "delay":2,  "min":13,  "hour":12,  "pfc":175,  "day":16  },  "msg\_pseq":15,  "msg\_frame":3,  "msg\_content":[  {  "cmd":"queryGpmFrozenTime",  "pn":0  }  ],  "msg\_afn":10,  "msg\_con":1,  "msg\_dev\_type":3,  "msg\_uid":"0000000000010823",  "msg\_frm":1  } | | | | | |

### 查询内置电表数据冻结时间（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  |  | “queryGpmFrozenTime” |
|  | pn |  | (p0) | 0 |
|  | hour |  | 时 | 12 |
|  | min |  | 分 | 01 |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 15,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 175,  "sec": 58,  "min": 13,  "hour": 12,  "day": 16,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "hour": 14,  "min": 0,  "cmd": "queryGpmFrozenTime"  }  ]  } | | | | | |

### 查询设备密码保护参数（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | f55 | “queryPasswdParam” |
|  | pn |  | (p0) | 0 |
| {  "msg\_tpv":{  "sec":58,  "delay":2,  "min":13,  "hour":12,  "pfc":175,  "day":16  },  "msg\_pseq":15,  "msg\_frame":3,  "msg\_content":[  {  "cmd":"queryPasswdParam",  "pn":0  }  ],  "msg\_afn":10,  "msg\_con":1,  "msg\_dev\_type":3,  "msg\_uid":"0000000000010823",  "msg\_frm":1  } | | | | | |

### 查询设备密码保护参数（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  |  | “queryPasswdParam” |
|  | pn |  | 0(p0) | 0 |
|  | enable |  | 是否启用  int类型 | 0：禁用  1：启用 |
|  | passwd |  | 密码  string类型 | “123456” |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 10,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 15,  "msg\_frame": 3,  "event\_serious": 1,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 175,  "sec": 58,  "min": 13,  "hour": 12,  "day": 16,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "enable": 1,  "passwd": "123456",  "cmd": "queryPasswdParam"  }  ]  } | | | | | |

## 功能码0C

### 终端日历时钟实时查询(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512(f2)  终端日历时钟查询 | “queryTerminalRtc” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {},  "msg\_pseq": 8,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryTerminalRtc",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 终端日历时钟实时回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512(f2)  终端日历时钟查询 | “queryTerminalRtc” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | rtcSecond |  | 秒 | 30 |
|  | rtcMinute |  | 分 | 30 |
|  | rtcHour |  | 时 | 3 |
|  | rtcDay |  | 日 | 5 |
|  | rtcWeek |  | 星期  1-7对应星期一到星期日 | 0 |
|  | rtcMonth |  | 月 | 5 |
|  | rtcYear |  | 年 | 19 |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 8,  "msg\_frame": 3,  "event\_serious": 32,  "event\_common": 105,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "rtcSecond": 4,  "rtcMinute": 10,  "rtcHour": 9,  "rtcDay": 22,  "rtcWeek": 3,  "rtcMonth": 12,  "rtcYear": 21,  "cmd": "queryTerminalRtc"  }  ]  } | | | | | |

### 模拟量查询(下行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9)  单个模拟量查询 | “querySingleAnalog” |
|  | pn |  | 0-65535  1(p1) 测量点，非0 | 1 |

### 模拟量查询回复(上行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9)  单个模拟量回复 | “querySingleAnalog” |
|  | pn |  | 0-65535  1(p1) 测量点,非0 | 1 |
|  | analogPointType |  | 模拟量类型  模拟量类型：  0未知；1 电压；2 电流；3 有功功率；4 无功功率；5 功率因数；6 频率；7 相角；8 照度; 9 漏电流 | 1 |
|  | analogValue |  | 模拟量数值,  4字节 float类型 | 1 |

### 遥信量查询(下行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9)  单个遥信量查询 | “querySingleRemoteSignal” |
|  | pn |  | 0-65535  1(p1) 测量点，非0 | 1 |

### 遥信量查询回复(上行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 257(f9)  单个模拟量回复 | “querySingleRemoteSignal” |
|  | pn |  | 0-65535  1(p1) 测量点,非0 | 1 |
|  | remoteSignalValue |  | 遥信量数值,  1字节 int类型 | 1 |

### 模拟量批量查询(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 1025(f11)  模拟量批量查询 | “queryMultiAnalog” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | analogSum |  | 模拟量个数 | 5 |
|  | analogStartNum |  | 起始模拟量号 | 0 |
| {  "msg\_tpv": {  "sec": 12,  "delay": 2,  "min": 54,  "hour": 8,  "pfc": 105,  "day": 22  },  "msg\_pseq": 9,  "msg\_frame": 3,  "msg\_content": [  {  "analogSum": 32,  "cmd": "queryMultiAnalog",  "analogStartNum": 0,  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 模拟量批量查询回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 1025(f11)  模拟量批量回复 | “queryMultiAnalog” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | analogSum |  | 模拟量数据个数1字节 BIN | 5 |
|  | analogStartNum |  | 模拟量点号  1字节 BIN | 0 |
| analogPoint[n] | analogPointNum |  | 模拟量1点号  1字节 BIN | 0 |
| analogPointType |  | 模拟量1类型 1字节 BIN  模拟量类型：  0未知；1 电压；2 电流；3 有功功率；4 无功功率；5 功率因数；6 频率；7 相角；8 照度; 9 漏电流 | 1 |
| analogValue |  | 模拟量数值：  float类型 | 1 |
| {  "msg\_uid": "00000000000113da",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 1,  "msg\_frame": 3,  "event\_serious": 2,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "analogSum": 40,  "analogStartNum": 0,  "analogPoint": [  {  "analogPointNum": 0,  "analogPointType": 6,  "analogValue": 50.02  },  {  "analogPointNum": 1,  "analogPointType": 1,  "analogValue": 232.71  },  {  "analogPointNum": 2,  "analogPointType": 1,  "analogValue": 232.73  },  {  "analogPointNum": 3,  "analogPointType": 1,  "analogValue": 232.85  },  {  "analogPointNum": 4,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 5,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 6,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 7,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 8,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 9,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 10,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 11,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 12,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 13,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 14,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 15,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 16,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 17,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 18,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 19,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 20,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 21,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 22,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 23,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 24,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 25,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 26,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 27,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 28,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 29,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 30,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 31,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 32,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 33,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 34,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 35,  "analogPointType": 5,  "analogValue": 0.0  },  {  "analogPointNum": 36,  "analogPointType": 2,  "analogValue": 0.0  },  {  "analogPointNum": 37,  "analogPointType": 3,  "analogValue": 0.0  },  {  "analogPointNum": 38,  "analogPointType": 4,  "analogValue": 0.0  },  {  "analogPointNum": 39,  "analogPointType": 5,  "analogValue": 0.0  }  ],  "cmd": "queryMultiAnalog"  }  ]  } | | | | | |

**PS：设备可以主动上报，主动上报上位机不需要回复**

### 遥信量批量查询(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 2049(f12)  状态量批量查询 | “queryMultiRemoteSignal” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | remotePointSum |  | 状态量个数 | 5 |
|  | remotePointStart |  | 起始状态量号 | 0 |
| {  "msg\_tpv": {  "sec": 17,  "delay": 2,  "min": 54,  "hour": 8,  "pfc": 106,  "day": 22  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "remotePointStart": 0,  "remotePointSum": 31,  "cmd": "queryMultiRemoteSignal",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 遥信量批量回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  2049(f12)  状态量批量查询 | “queryMultiRemoteSignal” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | remotePointSum |  | 状态量个数 | 5 |
|  | remotePointStart |  | 起始状态量号 | 0 |
| remotePoint[n] | pointNum |  | 点号 | 0 |
| pointStatus |  | 状态量  1闭合 0断开  （手动开关状态：闭合为1， 断开为2， 自动为0；） | 1 |
| {  "msg\_uid": "00000000000113da",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 1,  "msg\_frame": 3,  "event\_serious": 2,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "remotePointSum": 40,  "remotePointStart": 0,  "remotePoint": [  {  "pointNum": 0,  "pointStatus": 0  },  {  "pointNum": 1,  "pointStatus": 0  },  {  "pointNum": 2,  "pointStatus": 0  },  {  "pointNum": 3,  "pointStatus": 0  },  {  "pointNum": 4,  "pointStatus": 0  },  {  "pointNum": 5,  "pointStatus": 0  },  {  "pointNum": 6,  "pointStatus": 0  },  {  "pointNum": 7,  "pointStatus": 0  },  {  "pointNum": 8,  "pointStatus": 0  },  {  "pointNum": 9,  "pointStatus": 0  },  {  "pointNum": 10,  "pointStatus": 0  },  {  "pointNum": 11,  "pointStatus": 0  },  {  "pointNum": 12,  "pointStatus": 0  },  {  "pointNum": 13,  "pointStatus": 0  },  {  "pointNum": 14,  "pointStatus": 0  },  {  "pointNum": 15,  "pointStatus": 0  },  {  "pointNum": 16,  "pointStatus": 0  },  {  "pointNum": 17,  "pointStatus": 0  },  {  "pointNum": 18,  "pointStatus": 0  },  {  "pointNum": 19,  "pointStatus": 0  },  {  "pointNum": 20,  "pointStatus": 0  },  {  "pointNum": 21,  "pointStatus": 0  },  {  "pointNum": 22,  "pointStatus": 0  },  {  "pointNum": 23,  "pointStatus": 0  },  {  "pointNum": 24,  "pointStatus": 0  },  {  "pointNum": 25,  "pointStatus": 0  },  {  "pointNum": 26,  "pointStatus": 0  },  {  "pointNum": 27,  "pointStatus": 0  },  {  "pointNum": 28,  "pointStatus": 0  },  {  "pointNum": 29,  "pointStatus": 0  },  {  "pointNum": 30,  "pointStatus": 0  },  {  "pointNum": 31,  "pointStatus": 0  },  {  "pointNum": 32,  "pointStatus": 0  },  {  "pointNum": 33,  "pointStatus": 0  },  {  "pointNum": 34,  "pointStatus": 0  },  {  "pointNum": 35,  "pointStatus": 0  },  {  "pointNum": 36,  "pointStatus": 0  },  {  "pointNum": 37,  "pointStatus": 0  },  {  "pointNum": 38,  "pointStatus": 0  },  {  "pointNum": 39,  "pointStatus": 0  }  ],  "cmd": "queryMultiRemoteSignal"  }  ]  } | | | | | |

**PS：设备可以主动上报，主动上报上位机不需要回复**

### 终端运行状态查询(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 4101(f45)  终端运行状态查询 | “queryTerminalRunStatus” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 55,  "delay": 2,  "min": 13,  "hour": 9,  "pfc": 58,  "day": 21  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryTerminalRunStatus",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010984",  "msg\_frm": 1  } | | | | | |

### 终端运行状态回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  2049(f12)  终端运行状态查询 | “queryTerminalRunStatus” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | clockBatteryVoltage |  | 时钟电池电压  float类型 | 128 |
|  | batteryVoltage |  | 后备电池电压  float类型 | 128 |
|  | temperValue |  | 温度  float类型 | 20.5 |
|  |  | humidityValue |  | 湿度float类型 | 56 |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 2,  "msg\_frame": 3,  "event\_serious": 18,  "event\_common": 199,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 162,  "sec": 18,  "min": 42,  "hour": 11,  "day": 16,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "clockBatteryVoltage": 0.0,  "batteryVoltage": 11.8,  "temperValue": 0.0,  "humidityValue": 0.0,  "cmd": "queryTerminalRunStatus"  }  ]  } | | | | | |

### 终端GPS地理位置信息查询(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 8197(f46)  终端GPS地理位置查询 | “queryGeographicLocation” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 30,  "delay": 2,  "min": 56,  "hour": 13,  "pfc": 28,  "day": 3  },  "msg\_pseq": 12,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryGeographicLocation",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000012526",  "msg\_frm": 1  } | | | | | |

### 终端GPS地理位置信息回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  8197(f46)  终端GPS地理位置回复 | “queryGeographicLocation” |
|  | pn |  | 0-65535  0(p0)  ——经度：经度值×100000  ——纬度：纬度值×100000 | 0 |
|  | longitude |  | 经度  float类型 | 5 |
|  | latitude |  | 纬度  float类型 | 10 |
| {  "msg\_uid": "0000000000012526",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 12,  "msg\_frame": 3,  "event\_serious": 12,  "event\_common": 29,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 28,  "sec": 30,  "min": 56,  "hour": 13,  "day": 3,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "longitude": "0.000000",  "latitude": "0.000000",  "cmd": "queryGeographicLocation"  }  ]  } | | | | | |

### 回路保护状态查询（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F45) | “queryProtectFlag” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 22,  "delay": 2,  "min": 54,  "hour": 8,  "pfc": 107,  "day": 22  },  "msg\_pseq": 11,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryProtectFlag",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 回路保护状态查询（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F45) | “queryProtectFlag” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | protectFlag |  | 字符串 | 1-16个开关回路，表示被保护的 “1,2,3,4…” |
| {  "msg\_uid": "00000000000113da",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 1,  "msg\_frame": 3,  "event\_serious": 2,  "event\_common": 0,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "protectFlag": "",  "cmd": "queryProtectFlag"  }  ]  } | | | | | |

### 外接电表数据查询（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F45) | “queryGpmData” |
|  | pn |  | 0-65535  0(p0) | 1-5,具体电表序号 |
|  |  | gpmaddr |  | 电表地址 | “180110080065”  电表上写的16位纯数字字符串，如果位数不足，前面补“A” |
| {  "msg\_tpv": {  "sec": 25,  "delay": 1,  "min": 47,  "hour": 11,  "pfc": 10,  "day": 4  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryGpmData",  "gpmaddr": "000000000001",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 外接电表数据查询（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  (F50) | “queryGpmData” |
|  | pn |  | 0-65535  0(p0) | 1-5,具体电表序号 |
|  | gpmaddr |  | 电表地址 | “180110080065”  电表上写的16位纯数字字符串，如果位数不足，前面补“A” |
|  | effect |  | 数据有效位 | effective有效  ineffective无效 |
|  | rate |  | 频率 | Hz |
|  | electricity |  | 三相总电能 | 单位KWH |
|  | leakcu |  | 漏电电流 | 单位A |
|  | GpmData[3]  电表三相数据 | gpmpha | 通道号/相位 | 固定为电表检测电能的通道序号，A相是0，B相是1，C相是2 |
|  | voltage | 电压 | 单位V |
|  | current | 电流 | 单位A |
|  | pactPower | 有功功率 | 单位W |
|  | preaPower | 无功功率 | 单位W |
|  | powFactor | 功率因素 | % |
|  | paenergy | 单项电能 | 单位KWH |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "gpmaddr": "000031165912",  "effect": "ineffective",  "rate": 0.0,  "electricity": 0.0,  "leakcu": 0.0,  "GpmData": [  {  "gpmpha": 0,  "voltage": 0.0,  "current": 0.0,  "pactPower": 0.0,  "preaPower": 0.0,  "powFactor": 0.0,  "paenergy": 0.0  },  {  "gpmpha": 1,  "voltage": 0.0,  "current": 0.0,  "pactPower": 0.0,  "preaPower": 0.0,  "powFactor": 0.0,  "paenergy": 0.0  },  {  "gpmpha": 2,  "voltage": 0.0,  "current": 0.0,  "pactPower": 0.0,  "preaPower": 0.0,  "powFactor": 0.0,  "paenergy": 0.0  }  ],  "cmd": "queryGpmData"  }  ]  } | | | | | |

### SD卡状态查询（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F51) | “querySDstatus” |
|  | pn |  | 0-65535  0(p0) | 0 |
| {  "msg\_tpv": {  "sec": 25,  "delay": 1,  "min": 47,  "hour": 11,  "pfc": 10,  "day": 4  },  "msg\_pseq": 10,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "querySDstatus",  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### SD卡状态查询（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  (F51) | “querySDstatus” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | status |  | 状态 | 1正常，2异常。  设备上电应主动上报；  出现异常时主动上报。 |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_acd": 0,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "status": 1,  "cmd": "querySDstatus"  }  ]  } | | | | | |

### 电能数据查询（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  261(F52) | “queryEnergy” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  |  | addr |  | 电表号 | Int，1  1—N表示查询第N个  0xff表示查询全部 |
| {  "msg\_tpv": {  "sec": 27,  "delay": 1,  "min": 54,  "hour": 8,  "pfc": 109,  "day": 22  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "cmd": "queryEnergy",  "addr": 255,  "pn": 0  }  ],  "msg\_afn": 12,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 电能数据查询（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  (F52) | “queryEnergy” |
|  | pn |  | 0-65535  0(p0) | 0 |
|  | year |  | 年 | Int，2021 |
|  | month |  | 月 | Int，1 |
|  | day |  | 日 | Int，1 |
|  | hour |  | 时 | Int，1 |
|  | min |  | 分 | Int，1 |
|  | num |  | 电表数量 | N，为0则数据无效 |
|  | gpms[N] | addr | 电表号 | Int，1 |
|  | EnergyA | A相电能,KWH | KWH |
|  | EnergyB | B相电能,KWH | KWH |
|  | EnergyC | C相电能,KWH | KWH |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 12,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 1,  "msg\_frame": 3,  "event\_serious": 36,  "event\_common": 157,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "num": 12,  "year": 2021,  "month": 12,  "day": 23,  "hour": 0,  "min": 0,  "gpms": [  {  "addr": 1,  "EnergyA": 6111.5,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 2,  "EnergyA": 5829.3,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 3,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 4,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 5,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 6,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 7,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 8,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 9,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 10,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 11,  "EnergyA": 0.7,  "EnergyB": 0.7,  "EnergyC": 0.7  },  {  "addr": 12,  "EnergyA": 0.8,  "EnergyB": 0.7,  "EnergyC": 0.7  }  ],  "cmd": "queryEnergy"  }  ]  } | | | | | |

支持查询和主动上报，主动上报周期为一天

## 功能码0D

### 请求模拟量历史数据(下行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256 (f1)  请求模拟量历史数据 | “queryAnHistoryData” |
|  | pn |  | 0-65535  1(p1) 测量点号 | 1 |
| data | min |  | 起始时间-分钟  int类型 | 30 |
| hour |  | 起始时间-小时  int类型 | 2 |
| day |  | 起始时间-日  int类型 | 5 |
| month |  | 起始时间-月  int类型 | 3 |
| year |  | 起始时间-年  int类型 | 19 |
| dataDensity |  | 数据冻结密度  int 类型  单位 分钟  统一定义：  0(不冻结)  1(1分钟间隔)  5(5分钟间隔)  15(15分钟间隔)  30(30分钟间隔)  60(60分钟间隔)  其它备用 | 5 |
| dataPointSum |  | 数据点数  int类型 | 5 |

### 请求模拟量历史数据回复(上行报文)（已弃用）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256(f1)  模拟量历史数据 | “queryAnHistoryData” |
|  | pn |  | 0-65535  1(p1)  测量点号 | 1 |
|  | min |  | 起始时间-分钟  int类型 | 30 |
|  | hour |  | 起始时间-小时  int类型 | 2 |
|  | day |  | 起始时间-日  int类型 | 3 |
|  | month |  | 起始时间-月  int类型 | 3 |
|  | year |  | 起始时间-年  int类型 | 19 |
|  | dataDensity |  | 数据冻结密度  int 类型  单位 分钟  统一定义：  0(不冻结)  1(1分钟间隔)  5(5分钟间隔)  15(15分钟间隔)  30(30分钟间隔)  60(60分钟间隔)  其它备用 | 5 |
|  | dataPointSum |  | 数据点数  int类型 | 5 |
| analogTypeArray[n] | analogType | 对象类型 | 模拟量类型  int类型0 | 未知；1 电压；2 电流；3 有功功率；4 无功功率； 5 功率因数；6 频率；7 相角；8 照度; 9 漏电流 |
| dataArray[n] | pointNum | 数据点号 |
| pointValue | 数据点值 |

### 查询内置电表冻结数据（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  |  | int | 1 |
| msg\_afn |  |  | 公共消息包头 | 功能码分类 | 0DH |
| msg\_frm |  |  | rep/req(PRM) | 1(主动站) |
| msg\_uid |  |  | 集中器uid | “3500000100000000” |
| Msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_tpv json对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签，下行才有的字段 | day |  | 日 | 5 |
| hour |  | 时 | 9 |
| min |  | 分 | 15 |
| sec |  | 秒 | 39 |
| delay |  | 传输延时单位分钟 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | f2 | “queryGpmFrozenData” |
|  | pn |  | p0 | 0 |
|  |  | dataPoint |  | 数据点数,要查询的冻结数据条数 | 1 |
| {  "msg\_tpv": {  "sec": 27,  "delay": 1,  "min": 54,  "hour": 8,  "pfc": 109,  "day": 22  },  "msg\_pseq": 13,  "msg\_frame": 3,  "msg\_content": [  {  "pn": 0,  "cmd": "queryGpmFrozenData",  "dataPoint": 2  }  ],  "msg\_afn": 13,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 查询内置电表冻结数据（上行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  |  | int | 1 |
| msg\_afn |  |  | 公共消息包头 | 功能码分类 | 0DH |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid | “3500000100000000” |
| Msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  |  | 帧序列号范围0-15 int类型 | 1 |
| event\_common |  |  |  | 普通事件计数/上行才有的字段 | 1 |
| event\_serious |  |  |  | 重要事件计数/上行才有的字段 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | f2 | “queryGpmFrozenData” |
|  | pn |  | p0 | 0 |
|  | dataPoint |  | 数据点数，对应下面数据个数 | 2 |
|  |  | dataArray[n] | frozeTime | 冻结时间，精确到分 | “21-09-09 14:49” |
|  |  |  | electricity | 总电能 | 1000.1 |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 13,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 13,  "msg\_frame": 3,  "event\_serious": 88,  "event\_common": 6,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 109,  "sec": 27,  "min": 54,  "hour": 8,  "day": 22,  "delay": 1  },  "msg\_content": [  {  "pn": 0,  "dataPoint": 2,  "dataArray": [  {  "frozeTime": "21-12-30 00:00",  "electricity": 234.9  },  {  "frozeTime": "21-12-31 00:00",  "electricity": 235.3  }  ],  "cmd": "queryGpmFrozenData"  }  ]  } | | | | | |

如果冻结数据不存在，比如查询20条，只有10条数据，则其余的冻结时间为”00-00-00 00:00”,

冻结总电能全为0

## 功能码0E

### 请求重要事件（下行报文）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256 (f1)  请求重要事件 | “reqImportantEvent” |
|  | pn |  | 0(p0) | 0 |
|  | pointStart |  | 请求事件记录起始指针  int类型  范围0-255 | 1 |
|  | pointEnd |  | 请求事件记录结束指针  int类型  范围0-255 | 20 |
| 备注:通常情况下，事件记录Y = pointEnd – pointStart；pointEnd的数值可以比pointStart数值小，当pointEnd<pointStart时，事件记录Y=256 + pointEnd – pointStart，pointEnd和pointStart都不大于255。 | | | | |
| {  "msg\_tpv": {  "sec": 41,  "delay": 2,  "min": 53,  "hour": 7,  "pfc": 79,  "day": 23  },  "msg\_pseq": 15,  "msg\_frame": 3,  "msg\_content": [  {  "pointStart": 36,  "pointEnd": 38,  "cmd": "reqImportantEvent",  "pn": 0  }  ],  "msg\_afn": 14,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010823",  "msg\_frm": 1  } | | | | | |

### 请求重要事件回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256(f1)  请求重要事件 | “reqImportantEvent” |
|  | pn |  | 0(p0) | 0 |
|  | curEventCounter |  | 当前事件计数器  int类型  范围0-255 | 30 |
|  | pointStart |  | 事件记录起始指针  int类型  不大于255 | 1 |
|  | pointEnd |  | 事件记录结束指针  int类型  不大于255 | 3 |
| record[Y] | recNum |  | 事件记录序号  int类型 | 0(取值小于Y) |
| recCode |  | 事件记录代码  int类型 | 1 |
| recLenth |  | 事件记录长度  int类型  不大于255 | 10 |
| recMin |  | 事件发生时间，分 | 1 |
| recHour |  | 事件发生时间，时 | 1 |
| recDay |  | 事件发生时间，日 | 1 |
| recMon |  | 事件发生时间，月 | 1 |
| recYear |  | 事件发生时间，年 | 1 |
| 数据位  （附录1） |  | 事件内容 | n |
| {  "msg\_uid": "0000000000010823",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 14,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 15,  "msg\_frame": 3,  "event\_serious": 104,  "event\_common": 6,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 79,  "sec": 41,  "min": 53,  "hour": 7,  "day": 23,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "curEventCounter": 104,  "pointStart": 36,  "pointEnd": 38,  "record": [  {  "recNum": 0,  "recCode": 7,  "recLenth": 8,  "recMin": 6,  "recHour": 0,  "recDay": 5,  "recMon": 1,  "recYear": 22,  "remoPoint": 12,  "remoType": 2,  "status": 0  },  {  "recNum": 1,  "recCode": 7,  "recLenth": 8,  "recMin": 6,  "recHour": 0,  "recDay": 5,  "recMon": 1,  "recYear": 22,  "remoPoint": 15,  "remoType": 2,  "status": 0  }  ],  "cmd": "reqImportantEvent"  }  ]  } | | | | | |

### 请求一般事件(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  512 (f2)  请求一般事件 | “reqCommonEvent” |
|  | pn |  | 0(p0) | 0 |
|  | pointStart |  | 请求事件记录起始指针  int类型  范围0-255 | 1 |
|  | pointEnd |  | 请求事件记录结束指针  int类型  范围0-255 | 20 |
| 备注:通常情况下，事件记录Y = pointEnd – pointStart；pointEnd的数值可以比pointStart数值小，当pointEnd<pointStart时，事件记录Y=256 + pointEnd – pointStart，pointEnd和pointStart都不大于255。 | | | | |
| {  "msg\_tpv": {  "sec": 41,  "delay": 2,  "min": 53,  "hour": 7,  "pfc": 78,  "day": 23  },  "msg\_pseq": 14,  "msg\_frame": 3,  "msg\_content": [  {  "pointStart": 157,  "pointEnd": 166,  "cmd": "reqCommonEvent",  "pn": 0  }  ],  "msg\_afn": 14,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010907",  "msg\_frm": 1  } | | | | | |

### 请求一般事件回复(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256(f1)  请求重要事件 | “reqCommonEvent” |
|  | pn |  | 0(p0) | 0 |
|  | curEventCounter |  | 当前事件计数器  int类型  范围0-255 | 30 |
|  | pointStart |  | 事件记录起始指针  int类型  不大于255 | 1 |
|  | pointEnd |  | 事件记录结束指针  int类型  不大于255 | 3 |
| record[Y] | recNum |  | 事件记录序号  int类型 | 0(取值小于Y) |
| recCode |  | 事件记录代码  int类型 | 1 |
| recLenth |  | 事件记录长度  int类型  不大于255 | 10 |
| recMin |  | 事件发生时间，分 | 1 |
| recHour |  | 事件发生时间，时 | 1 |
| recDay |  | 事件发生时间，日 | 1 |
| recMon |  | 事件发生时间，月 | 1 |
| recYear |  | 事件发生时间，年 | 1 |
| 数据位  （附录1） |  | 事件内容 | n |
| {  "msg\_uid": "0000000000010907",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 14,  "msg\_frm": 0,  "msg\_con": 0,  "msg\_pseq": 14,  "msg\_frame": 3,  "event\_serious": 38,  "event\_common": 166,  "msg\_acd": 1,  "msg\_tpv": {  "pfc": 78,  "sec": 41,  "min": 53,  "hour": 7,  "day": 23,  "delay": 2  },  "msg\_content": [  {  "pn": 0,  "curEventCounter": 166,  "pointStart": 157,  "pointEnd": 166,  "record": [  {  "recNum": 0,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 1,  "status": 0,  "ercflag": 1  },  {  "recNum": 1,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 2,  "status": 0,  "ercflag": 1  },  {  "recNum": 2,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 3,  "status": 0,  "ercflag": 1  },  {  "recNum": 3,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 4,  "status": 0,  "ercflag": 1  },  {  "recNum": 4,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 5,  "status": 0,  "ercflag": 1  },  {  "recNum": 5,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 6,  "status": 0,  "ercflag": 1  },  {  "recNum": 6,  "recCode": 11,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "AFN": 5,  "FN": 1,  "PN": 1  },  {  "recNum": 7,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 7,  "status": 0,  "ercflag": 1  },  {  "recNum": 8,  "recCode": 2,  "recLenth": 8,  "recMin": 53,  "recHour": 7,  "recDay": 23,  "recMon": 12,  "recYear": 21,  "loopNum": 8,  "status": 0,  "ercflag": 1  }  ],  "cmd": "reqCommonEvent"  }  ]  } | | | | | |

## 功能码10

### FTP升级命令(下行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  |  | int | 1 |
| msg\_afn |  |  | 公共消息包头 | 功能码分类 | 10H |
| msg\_frm |  |  | rep/req(PRM) | 1(主动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| Msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_tpv json对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签，下行才有的字段 | day |  | 日 | 5 |
| hour |  | 时 | 9 |
| min |  | 分 | 15 |
| sec |  | 秒 | 39 |
| delay |  | 传输延时单位分钟 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  257 (f9)  FTP升级命令 | “ftpUpdate” |
|  | pn |  | 0(p0) | 0 |
|  | mIp1 |  | FTP IP地址1  int类型 | 192 |
|  | mIp2 |  | FTP IP地址2  int类型 | 168 |
|  | mIp3 |  | FTP IP地址3  int类型 | 16 |
|  | mIp4 |  | FTP IP地址4  int类型 | 90 |
|  | mPort |  | ftp服务器端口  int类型  范围0～65535 | 20 |
|  | bIp1 |  | FTP备用IP地址1  int类型 | 192 |
|  | bIp2 |  | FTP备用IP地址2  int类型 | 168 |
|  | bIp3 |  | FTP备用IP地址3  int类型 | 20 |
|  | bIp4 |  | FTP备用IP地址4  int类型 | 30 |
|  | bPort |  | ftp备用服务器端口  int类型  范围0～65535 | 20 |
|  | user |  | 用户名  string类型，只能由数字组成  大小固定10字节 | “1234567890” |
|  | password |  | 用户密码  string类型，只能由数字组成  大小固定10字节 | “1234567890” |
|  | filePath |  | 文件路径  string类型  大小固定20字节 | “C:\...” |
|  | bfilePath |  | 备用文件路径  string类型  大小固定20字节 | “D:\...” |
|  | fileName1 |  | 文件名1  string类型  大小固定10字节 | “update\_...” |
|  | fileName2 |  | 文件名2  string类型  大小固定10字节 | “update\_...” |
|  | fileName3 |  | 文件名3  string类型  大小固定10字节 | “update\_...” |
|  | fileName4 |  | 文件名4  string类型  大小固定10字节 | “update\_...” |
|  | fileName5 |  | 文件名5  string类型  大小固定10字节 | “update\_...” |
| {  "msg\_tpv": {  "sec": 8,  "delay": 2,  "min": 13,  "hour": 9,  "pfc": 197,  "day": 6  },  "msg\_pseq": 5,  "msg\_frame": 3,  "msg\_content": [  {  "bIp2": 0,  "bIp1": 0,  "bIp4": 0,  "bIp3": 0,  "filePath": "/",  "mPort": 21,  "bPort": 0,  "mIp2": 78,  "mIp3": 228,  "mIp1": 103,  "mIp4": 88,  "password": "123",  "fileName1": "11998.bin",  "fileName2": "",  "bfilePath": "",  "cmd": "ftpUpdate",  "fileName5": "",  "user": "123",  "pn": 0,  "fileName3": "",  "fileName4": ""  }  ],  "msg\_afn": 16,  "msg\_con": 1,  "msg\_dev\_type": 3,  "msg\_uid": "0000000000010902",  "msg\_frm": 1  } | | | | | |

### FTP升级命令确认(上行报文)

回复确认，参考确认报文

### FTP升级结果(上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  |  | int | 1 |
| msg\_afn |  |  | 公共消息包头 | 功能码分类 | 10H |
| msg\_frm |  |  | rep/req(PRM) | 1(主动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| Msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  |  | 帧序列号范围0-15 int类型 | 1 |
| event\_common |  |  |  | 普通事件计数/上行才有的字段 | 1 |
| event\_serious |  |  |  | 重要事件计数/上行才有的字段 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  513 (f10)  FTP升级结果 | “ftpUpdateResult” |
|  | pn |  | 0(p0) | 0 |
|  | prevSVer |  | 升级前软件版本号  previous software  version  string类型 | “1230” |
|  | prevDay |  | 升级前软件发布版本—日  int类型 | 3 |
|  | prevMonth |  | 升级前软件发布版本—月  int类型 | 3 |
|  | prevYear |  | 升级前软件发布版本—年  int类型 | 19 |
|  | nowSVer |  | 升级后软件版本号  now softwareversion  string类型 | “1231” |
|  | nowDay |  | 升级后软件发布版本—日  int类型 | 9 |
|  | nowMonth |  | 升级后软件发布版本—月  int类型 | 3 |
|  | nowYear |  | 升级后软件发布版本—年  int类型 | 19 |
|  | updateMin |  | 升级发生时间—分int类型 | 30 |
|  | updateHour |  | 升级发生时间—时int类型 | 18 |
|  | updateDay |  | 升级发生时间—日int类型 | 9 |
|  | updateMonth |  | 升级发生时间—月int类型 | 3 |
|  | updateYear |  | 升级发生时间—年int类型 | 19 |
| **备注：设备层与回路控制箱通信时，需要将日期时间转换成BCD格式，分钟在前，年在后。** | | | | | |
| {  "msg\_uid": "0000000000010902",  "msg\_dev\_type": 3,  "host": "172.31.0.26",  "port": "12104",  "msg\_afn": 16,  "msg\_frm": 1,  "msg\_con": 1,  "msg\_pseq": 13,  "msg\_frame": 3,  "event\_serious": 175,  "event\_common": 63,  "msg\_acd": 1,  "msg\_tpv": {},  "msg\_content": [  {  "pn": 0,  "prevSVer": "11882",  "nowSVer": "11998",  "prevDay": 1,  "prevMonth": 1,  "prevYear": 1,  "nowDay": 2,  "nowMonth": 2,  "nowYear": 2,  "updateMin": 1,  "updateHour": 1,  "updateDay": 1,  "updateMonth": 1,  "updateYear": 1,  "cmd": "ftpUpdateResult"  }  ]  } | | | | | |

### FTP升级结果确认(下行报文)

回复确认，参考确认报文

### 下发通知远程升级(下行报文)（旧版升级方式）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_dev\_type |  |  |  | int | 3 |
| msg\_afn |  |  | 公共消息包头 | 功能码分类 | 10H |
| msg\_frm |  |  | rep/req(PRM) | 0(从动站) |
| msg\_uid |  |  | 集中器uid  (8字节string类型) | “3500000100000000” |
| Msg\_frame |  |  | 帧序号/多帧情况  0代表中间帧  1代表最后一帧  2代表首帧  3代表仅一帧，是首帧也是末帧 | 3(仅此一帧) |
| msg\_con |  |  | 是否需要确认1是,0否 | 0 |
| msg\_pseq |  |  |  | 帧序列号范围0-15 int类型 | 1 |
| msg\_tpv json 对象  空对象代表没有时间标签  有对象代表有时间标签 | 空代表没有时间标签,下行才有的字段 | day |  | 日 | 5 |
| hour | 时 | 9 |
| min | 分 | 15 |
| sec | 秒 | 39 |
| delay | 传输延时 单位分钟 | 1 |
| pfc | 帧序列号范围0-255 int类型 | 1 |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535  256 (f11)  远程升级 | “oldUpdate” |
|  | pn |  | 0(p0) | 0 |
|  |  | version |  | 版本号string类型 | “10799” |
|  |  | size |  | 文件大小 | 65535 |
|  |  | fileCheckSum |  | 文件CRC校验值 | 2个字节 |
|  |  | packageNum |  | 数据包数量 | 10 |
|  |  | packageLen |  | 数据包长度 | 1024，int |
|  |  | operate |  | 升级操作 | 1、执行升级；2、停止升级 暂时不用，保留 |
|  |  | devType |  | 设备类型 | 1，监控箱 |
|  |  | model |  | 设备型号 | lcb02 最多8个字符 |

### 请求升级数据(上行报文)（旧版升级方式）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f12) | “getFileData” |
| pn |  | 0-65535 0(p0) | 0 |
|  |  | version |  | 版本号 string类型 | “10799” |
|  |  | dataIndex |  | 数据包索引 | 0-（N-1） |
|  |  | times |  | 重发次数 | 集中器请求次数。假设是3，集中器请求3次都不回，集中器就停止请求。 |
|  |  | status |  | 升级状态 | 升级状态包括：  1：升级中  2：升级完成  3：升级失败 |

### 下发升级数据(上行报文)（旧版升级方式）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  | 0-65535 256(f12) | “sendFileData” |
| pn |  | 0-65535 0(p0) | 0 |
|  |  | version |  | 版本号string类型 | “10799” |
|  |  | size |  | 文件大小 | 65535 |
|  |  | fileCheckSum |  | 文件CRC校验值 | 2个字节 |
|  |  | packageNum |  | 数据包数量 | 10 |
|  |  | dataIndex |  | 数据包索引 | 0-（N-1） |
|  |  | packageLen |  | 数据包长度 | 1024，int |
|  |  | packageCheckSum |  | 数据包CRC校验值 | 2个字节 |
|  |  | data |  | 数据包数据 |  |

## 光照计协议

### 光照计实时数据(扩展设备上行报文)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| root | parent | child |  | description | Value |
| msg\_content[n]  数据单元数组 |  | cmd |  |  | “upLux” |
|  | pn |  | 0(p0) | 0 |
|  |  | value |  | 0-10000 | 光照值 |

## 附录1 事件格式

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 事件代码recCode | 事件项目 | 数据内容 | | |
| Name | description | Value |
| ERC1 | 终端供电记录 | ercflag | 0x00 事件恢复（供电恢复）  0x01 事件开始（供电断开） | 1 |
| ERC2 | 开灯/关灯记录 | loopNum | 回路号,1-16 | 1 |
| status | 状态或操作类型 | 0x00缺省，  0x02显示屏操作，  0x03协议操作，  0x05任务操作，  0x06回路保护操作 |
| ercflag | 0x00开灯，0x01关灯 | 1 |
| ERC3 | 交流接触器拒动记录 | remoPoint | 接触器点位 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始。 | 1 |
| ERC4 | 回路保护记录 | protect | 保护源，漏电保护0x09，火零不平衡保护：0x0A，手动设置保护：0x0B | 0x09 |
| loopNum | 回路号,1-16 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| ERC5 | 参数错误或丢失记录 | AFN | 参数的AFN码 | 1 |
| FN | 参数的FN码 | 1 |
| ERC6 | 备用池电量不足记录 | ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| voltage | 当前电池电压 | Float |
| ERC7 | 状态量变化记录 | remoPoint | 遥信点号 |  |
| remoType | 遥信量类型 |  |
| status | 遥信量的值：  0：遥信量值为0  1：遥信量值为1  当遥信量类型为5（手动开关状态）时取值如下：  0表示自动  1手动开关闭合  2手动开关断开 | 0 |
| ERC8 | 模拟量越限记录 | ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| analogPoint | 模拟量点号 |  |
| analogType | 模拟量类型 |  |
| ercType | 事件类型,  0x00上限值告警，  0x01下限值告警，  0x02上限值保护，  0x03下限值保护 | 0 |
| alarmValue | 报警点当前值 | float |
| ERC9 | 终端通信故障记录 | ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| ERC10 | 终端复位记录 |  | 无数据 |  |
| ERC11 | 终端操作记录 | AFN | 参数的AFN码 | 1 |
| FN | 参数的FN码 | 1 |
| PN | 参数的FN码 | 1 |
| ERC12 | 终端远程升级记录 | ercType | 记录类型0x00 成功；0x01 失败 | 1 |
| ERC13 | 终端系统时间错误记录 | ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| ERC14 | 火零不平衡记录 | ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| loopNum | 测量（电表）回路号,1-16 | 1 |
| ercType | 0x01 报警；0x02保护 | 1 |
| alarmValue | 报警时刻值 | float |
| ERC15 | 白天亮灯 | ercRelate | 相位，1-A; 2-B; 3-C | 1 |
| loopNum | 测量（电表）回路号,1-16 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| alarmValue | 报警时刻值 | float |
| ERC16 | 晚上熄灯 | ercRelate | 相位，1-A; 2-B; 3-C | 1 |
| loopNum | 测量（电表）回路号,1-16 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| alarmValue | 报警时刻的电流值 | float |
| ERC17 | 接触器未释放 | remoPoint | 接触器点位 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |
| ERC18 | 接触器断开 | remoPoint | 接触器点位 | 1 |
| ercflag | 0x00 事件恢复；0x01 事件开始 | 1 |