

# 安科瑞 **ASCB1** 智能微型断路器简易协议 **V1.02**

Mqtt-json

# 1. 概述

基于 MQTT 协议框架，JSON 数据格式传输。服务器接收格式为 mqtt 版本 v3.1.1，服务质量为 QoS0

设备于服务器建立连接后，会先登录 MQTT BROKER，登录成功后订阅相关服务器的下发主题。每次首次连接后会先发 login 登录包，然后发 topology，上传下行拓扑结构。随后定时发送 update 上传实时数据。

网关协议必须设置为 cust，详见智能微断调试文档。

网关默认

用户名:acrel

密码: acret

clientid:网关 SN

# 2. 基本格式

所有消息均遵循以下格式：

```
{
  "msgid": 628131887239491584,
  "method": "update",
  "sn": "1234567890123",
  "timestamp": 1638869890
}
```

属性说明

参数	说明
msgid	必填，消息 id。
method	必填，标准协议中定义的 method，表示具体的业务场景。
sn	必填，设备 SN 编号。
timestamp	必填，消息生成时间戳，精确到秒。

响应消息遵循如下格式：

```
{
  "msgid": 628131887239491584,
  "method": "update",
  "sn": "1234567890123",
  "res": 1,
  "errcode": "400",
  "timestamp": 1638869890
}
```

属性说明

参数	说明
msgid	必填，必须与发起该流程的消息 msgid 保持一致
method	必填，必须与发起该流程的消息 method 保持一致
res	必填，响应类消息的状态，1 表示成功，0 表示失败
errcode	错误编码

3. 主题

功能	topic	method	说明
登录	上行: sys/dev/{sn}	login	
拓扑		topology	
OTA 升级	下行: sys/server/{sn} 上行: sys/dev/{sn}	ota	平台下发，网关回复
上报	上行: data/up/{sn}	update	
报警	上行: notify /dev/{sn}	alarm	
操作	上行: indicate /dev/{sn} 下行: indicate /server/{sn}	operate	平台下发，网关回复

## 4. 功能命令详解

### 1) 登录 login

```
{
  "msgid" : 0,
  "method" : "login",
  "sn" : " ASCB1TEST00003",
  "timestamp" : 0,
  "payload" : {
    "devname" : "ASCB1",
    "softcode" : "2613",
    "softversion" : "100",
    "network" : 0,
    "imei" : "863546059781060",
    "ccid" : "898604981022C0222935"
  }
}
```

属性说明

参数	说明
devname	设备名称
imei	模组 ID
ccid	SIM 卡 ID
network	网络系统（连接第三方平台无用）

### 2) 拓扑 topology

```
{
  "msgid": 2238,
  "method": "topology",
  "sn": "12209141996501",
  "timestamp": 1708461169,
  "payload": {
    "meter": [{
      "devsn": "96525743575548",
```

```

        "addr": "1_1",
        "devname": "ASCB1-1P",
        "productkey": "NjkwNzg2MTM1MjU4MzY1OTUy"
    },
    {
        "devsn": "A_SmartBreaker",
        "addr": "1_2",
        "devname": "ASCB1-3P",
        "productkey": "NjkwNzg2NDQ4NTE0MTU0NDk2"
    },
    {
        "devsn": "31245678754128",
        "addr": "1_3",
        "devname": "ASCB1-1P",
        "productkey": "NjkwNzg2MTM1MjU4MzY1OTUy"
    },
    {
        "devsn": "12209141996510",
        "addr": "1_4",
        "devname": "ASCB1LE-2P",
        "productkey": "NjkwNzg2NjcwNjI3NzE3MTIw"
    }
  ]
}

```

#### 属性说明

参数	说明
meter	仪表拓扑
addr	下行设备地址
devname	下行设备名称
productkey	产品密钥（连接第三方平台无用）

网关下断路器的拓扑结构（包括断路器序列号、地址、设备类型等信息）会在网关连上平台后上传一次。

### 3) OTA 升级

```

{
  "msgid": "123",
  "method": "ota",
  "sn": "ASCB1TEST00003",
  "timestamp": 1638869890,
  "payload": {

```

```

        "softcode": "2680",
        "softversion": "101",
        "sn": ["123", "124"],
        "file": [{
            "url":
"http://101.37.151.118:20001/exchange/attachment/download?id=7832629767
32098560",
            "size": 299528,
            "md5": "40a5da0b102ad65cc218a4cf39d30690"
        }]
    }
}

```

升级指令的网关回复如下:

```

{
  "msgid":123,
  "method":"ota",
  "sn":"ASCB1TEST00003",
  "res":1,
  "timestamp":1662353717
}

```

#### 4) 上报 update

实时数据:

```

{
  "msgid" : 5,
  "method" : "update",
  "sn" : " ASCB1TEST00003",
  "timestamp" : 1657095205,
  "sendtime" : 1657095205,
  "version" : 0,
  "reported" : {
    "rssi" : 16,
    "devsn" : "ascb1-12345678",
    "1_1" : {
      "state" : "ONLINE",
      "AlrRcrCnt" : "0",
      "LgFauSta" : "0",
      "T1FauSta" : "0",
      "T2FauSta" : "0",
      "T3FauSta" : "0",
      "T4FauSta" : "0",
      "RlyFauSta" : "0",
      "RlySta" : "1",
      "LockSta" : "0",

```

```

    "RlyRepSta" : "0",
    "Lg" : "0",
    "Temp1" : "30.2",
    "Temp2" : "0",
    "Temp3" : "0",
    "Temp4" : "0",
    "Freq" : "0",
    "Uub" : "0",
    "Ua" : "0",
    "Ub" : "0",
    "Uc" : "0",
    "U0" : "0",
    "Uab" : "0",
    "Ubc" : "0",
    "Uca" : "0",
    "Iub" : "0",
    "Ia" : "0",
    "Ib" : "0",
    "Ic" : "0",
    "I0" : "0",
    "Pa" : "0",
    "Pb" : "0",
    "Pc" : "0",
    "P" : "0",
    "Qa" : "0",
    "Qb" : "0",
    "Qc" : "0",
    "Q" : "0",
    "Sa" : "0",
    "Sb" : "0",
    "Sc" : "0",
    "S" : "0",
    "PFa" : "1.000",
    "PFb" : "1.000",
    "PFc" : "1.000",
    "PF" : "1.000",
    "EPI" : "0.040",
    "EPE" : "0",
    "EQL" : "0.010",
    "EQC" : "0.020",
    "ES" : "0.070"
  }
}
}

```

网关下断路器的实时数据上报频率最快是 60s 一次。网关下每台断路器实时数据

都采用**单独一包**数据上传。

1P-4P 上传数据格式完全相同，对于温度、电压、电流、功率等数据，1P、2P 进上传 A 相数据，另外两相数据均为 0。

保护参数：

```
{
  "msgid" : 222,
  "method" : "update",
  "sn" : "12209141996310",
  "timestamp" : 1677156193,
  "sendtime" : 1677156193,
  "version" : 0,
  "reported" : {
    "rssi" : 0,
    "devsn" : " ascb1-12345678",
    "1_1" : {
      "state" : "ONLINE",
      "Vrange" : "220",
      "Irange" : "63",
      "Line" : "1",
      "Tim1Mode" : "2",
      "Tim1MonEn" : "0",
      "Tim1TueEn" : "0",
      "Tim1WedEn" : "0",
      "Tim1ThurEn" : "0",
      "Tim1FriEn" : "0",
      "Tim1SatEn" : "0",
      "Tim1SunEn" : "0",
      "Tim1Value" : "1",
      "Tim1Year" : "23",
      "Tim1Month" : "2",
      "Tim1Day" : "23",
      "Tim1Hour" : "8",
      "Tim1Minute" : "0",
      "Tim1Second" : "0",
      "Tim2Mode" : "2",
      "Tim2MonEn" : "0",
      "Tim2TueEn" : "0",
      "Tim2WedEn" : "0",
      "Tim2ThurEn" : "0",
      "Tim2FriEn" : "0",
      "Tim2SatEn" : "0",
      "Tim2SunEn" : "0",
      "Tim2Value" : "0",
    }
  }
}
```



```
"Tim2Year" : "23",
"Tim2Month" : "2",
"Tim2Day" : "23",
"Tim2Hour" : "9",
"Tim2Minute" : "0",
"Tim2Second" : "0",
"Tim3Mode" : "2",
"Tim3MonEn" : "0",
"Tim3TueEn" : "0",
"Tim3WedEn" : "0",
"Tim3ThurEn" : "0",
"Tim3FriEn" : "0",
"Tim3SatEn" : "0",
"Tim3SunEn" : "0",
"Tim3Value" : "1",
"Tim3Year" : "23",
"Tim3Month" : "2",
"Tim3Day" : "23",
"Tim3Hour" : "10",
"Tim3Minute" : "0",
"Tim3Second" : "0",
"Tim4Mode" : "2",
"Tim4MonEn" : "0",
"Tim4TueEn" : "0",
"Tim4WedEn" : "0",
"Tim4ThurEn" : "0",
"Tim4FriEn" : "0",
"Tim4SatEn" : "0",
"Tim4SunEn" : "0",
"Tim4Value" : "0",
"Tim4Year" : "23",
"Tim4Month" : "2",
"Tim4Day" : "23",
"Tim4Hour" : "11",
"Tim4Minute" : "0",
"Tim4Second" : "0",
"Tim5Mode" : "2",
"Tim5MonEn" : "0",
"Tim5TueEn" : "0",
"Tim5WedEn" : "0",
"Tim5ThurEn" : "0",
"Tim5FriEn" : "0",
"Tim5SatEn" : "0",
"Tim5SunEn" : "0",
"Tim5Value" : "1",
"Tim5Year" : "23",
"Tim5Month" : "2",
"Tim5Day" : "23",
```

```
"Tim5Hour" : "12",
"Tim5Minute" : "0",
"Tim5Second" : "0",
"Tim6Mode" : "2",
"Tim6MonEn" : "0",
"Tim6TueEn" : "0",
"Tim6WedEn" : "0",
"Tim6ThurEn" : "0",
"Tim6FriEn" : "0",
"Tim6SatEn" : "0",
"Tim6SunEn" : "0",
"Tim6Value" : "0",
"Tim6Year" : "23",
"Tim6Month" : "2",
"Tim6Day" : "23",
"Tim6Hour" : "13",
"Tim6Minute" : "0",
"Tim6Second" : "0",
"CtrLevel" : "0",
"RcrCnt" : "0",
"RcrDly" : "10",
"SelChkMode" : "0",
"SelChkDay" : "0",
"SelChkHour" : "0",
"SelChkTime" : "0",
"RlyRep" : "0",
"LgHighSw" : "1",
"LgHighRlyOff" : "1",
"LgHighRlyRep" : "0",
"LgHighVal01" : "20",
"LgHighVal02" : "30",
"LgHighTim" : "5.0",
"T1HighSw" : "0",
"T1HighRlyOff" : "1",
"T1HighRlyRep" : "0",
"T1HighVal01" : "80",
"T1HighVal02" : "100",
"T1HighTim" : "5.0",
"T2HighSw" : "1",
"T2HighRlyOff" : "1",
"T2HighRlyRep" : "0",
"T2HighVal01" : "80",
"T2HighVal02" : "100",
"T2HighTim" : "5.0",
"T3HighSw" : "1",
"T3HighRlyOff" : "1",
"T3HighRlyRep" : "0",
"T3HighVal01" : "80",
```

```

    "T3HighVal02" : "100",
    "T3HighTim" : "5.0",
    "T4HighSw" : "0",
    "T4HighRlyOff" : "0",
    "T4HighRlyRep" : "0",
    "T4HighVal01" : "80",
    "T4HighVal02" : "100",
    "T4HighTim" : "5.0",
    "PHighSw" : "1",
    "PHighRlyOff" : "1",
    "PHighRlyRep" : "0",
    "PHighVal01" : "95.0",
    "PHighVal02" : "105.0",
    "PHighTim" : "5.0",
    "UHighSw" : "0",
    "UHighRlyOff" : "1",
    "UHighRlyRep" : "0",
    "UHighVal01" : "110.0",
    "UHighVal02" : "120.0",
    "UHighTim" : "5.0",
    "ULowSw" : "0",
    "ULowRlyOff" : "1",
    "ULowRlyRep" : "0",
    "ULowVal01" : "90.0",
    "ULowVal02" : "80.0",
    "ULowTim" : "5.0",
    "IHighSw" : "1",
    "IHighRlyOff" : "1",
    "IHighRlyRep" : "0",
    "IHighVal01" : "95.0",
    "IHighVal02" : "105.0",
    "IHighTim" : "5.0"
  }
}
}

```

注：编码定义见命名规范。

#### 属性说明

参数	说明
reported	表示设备上报的最新状态。

state	设备在线状态，ONLINE 为设备在线，OFFLINE 为设备离线。
-------	------------------------------------

## 5) 报警 alarm

报警：

```
//报警
{
  "msgid" : 3,
  "method" : "alarm",
  "sn" : "ASCB1TEST00003",
  "timestamp" : 1657095204,
  "payload" : {
    "addr" : "1_1",
    "devsn" : "ascb1-12345678",
    "alarmType" : ["ULOW1", "UHIGH1", "T1HIGH1", "T2HIGH1", "T3HIGH1",
    "T4HIGH1", "IHIGH1", "PHIGH1", "LgHIGH1", "ULOW2", "UHIGH2", "T1HIGH2",
    "T2HIGH2", "T3HIGH2", "T4HIGH2", "IHIGH2", "PHIGH2", "LgHIGH2"],
    "ULOW1" : {
      "id" : "U_1",
      "alarmType" : "LOW",
      "level" : "1",
      "currentValue" : {
        "Ua" : "0",
        "Ub" : "0",
        "Uc" : "0"
      },
      "settingValue" : "70.0"
    },
    "UHIGH1" : {
      "id" : "U_1",
      "alarmType" : "HIGH",
      "level" : "1",
      "currentValue" : {
        "Ua" : "230.90",
        "Ub" : "230.50",
        "Uc" : "230.10"
      },
      "settingValue" : "100.0"
    },
    "T1HIGH1" : {
      "id" : "T1_1",
      "alarmType" : "HIGH",
      "level" : "1",
```

```
"currentValue" : {
  "T1" : "18.6"
},
"settingValue" : "15"
},
"T2HIGH1" : {
  "id" : "T2_1",
  "alarmType" : "HIGH",
  "level" : "1",
  "currentValue" : {
    "T2" : "18.0"
  },
  "settingValue" : "15"
},
"T3HIGH1" : {
  "id" : "T3_1",
  "alarmType" : "HIGH",
  "level" : "1",
  "currentValue" : {
    "T3" : "18.0"
  },
  "settingValue" : "15"
},
"T4HIGH1" : {
  "id" : "T4_1",
  "alarmType" : "HIGH",
  "level" : "1",
  "currentValue" : {
    "T4" : "18.0"
  },
  "settingValue" : "15"
},
"IHIGH1" : {
  "id" : "I_1",
  "alarmType" : "HIGH",
  "level" : "1",
  "currentValue" : {
    "Ia" : "10.995",
    "Ib" : "10.999",
    "Ic" : "10.001"
  },
  "settingValue" : "10"
},
"PHIGH1" : {
  "id" : "P_1",
  "alarmType" : "HIGH",
  "level" : "1",
```

```
"currentValue" : {
  "P" : "4.172"
},
"settingValue" : "10"
},
"LgHIGH1" : {
  "id" : "Lg_1",
  "alarmType" : "HIGH",
  "level" : "1",
  "currentValue" : {
    "Lg" : "120.0"
  },
  "settingValue" : "100"
}

"ULOW2" : {
  "id" : "U_2",
  "alarmType" : "LOW",
  "level" : "2",
  "currentValue" : {
    "Ua" : "0",
    "Ub" : "0",
    "Uc" : "0"
  },
  "settingValue" : "80.0"
},
"UHIGH2" : {
  "id" : "U_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "Ua" : "249.90",
    "Ub" : "249.50",
    "Uc" : "250.10"
  },
  "settingValue" : "110.0"
},
"T1HIGH2" : {
  "id" : "T1_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "T1" : "28.6"
  },
  "settingValue" : "20"
},
"T2HIGH2" : {
  "id" : "T2_2",
```

```
"alarmType" : "HIGH",
"level" : "2",
"currentValue" : {
  "T2" : "29.0"
},
"settingValue" : "20"
},
"T3HIGH2" : {
  "id" : "T3_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "T3" : "29.5"
  },
  "settingValue" : "20"
},
"T4HIGH2" : {
  "id" : "T4_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "T4" : "29.5"
  },
  "settingValue" : "20"
},
"IHIGH2" : {
  "id" : "I_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "Ia" : "12.995",
    "Ib" : "12.999",
    "Ic" : "13.001"
  },
  "settingValue" : "20.0"
},
"PHIGH2" : {
  "id" : "P_2",
  "alarmType" : "HIGH",
  "level" : "2",
  "currentValue" : {
    "P" : "6.843"
  },
  "settingValue" : "18"
},
"LgHIGH2" : {
  "id" : "Lg_2",
  "alarmType" : "HIGH",
```

```

        "level" : "2",
        "currentValue" : {
            "Lg" : "4036.0"
        },
        "settingValue" : "300"
    }
}
}
}

```

报警复位:

```

// 子设备或设备的业务子模块报警
{
    "msgid" : 3,
    "method" : "alarm",
    "sn" : "ASCB1TEST00003",
    "timestamp" : 1657095204,
    "payload" : {
        "addr" : "1_1",
        "devsn" : "ascb1-12345678",
        "alarmType" : [ "LgRESET1", "T1RESET1", "T2RESET1", "T3RESET1",
            "T4RESET1", "PRESET1", "URESET1", "IRESET1", "LgRESET2", "T1RESET2",
            "T2RESET2", "T3RESET2", "T4RESET2", "PRESET2", "URESET2", "URESET2",
            "IRESET2" ],
        "LgRESET1" : {
            "id" : "Lg_1",
            "alarmType" : "RESET",
            "level" : "1"
        },
        "T1RESET1" : {
            "id" : "T1_1",
            "alarmType" : "RESET",
            "level" : "1"
        },
        "T2RESET1" : {
            "id" : "T2_1",
            "alarmType" : "RESET",
            "level" : "1"
        },
        "T3RESET1" : {
            "id" : "T3_1",
            "alarmType" : "RESET",
            "level" : "1"
        },
        "T4RESET1" : {
            "id" : "T4_1",
            "alarmType" : "RESET",

```



```
    "level" : "1"
  },
  "PRESET1" : {
    "id" : "P_1",
    "alarmType" : "RESET",
    "level" : "1"
  },
  "URESET1" : {
    "id" : "U_1",
    "alarmType" : "RESET",
    "level" : "1"
  },
  "IRESET1" : {
    "id" : "I_1",
    "alarmType" : "RESET",
    "level" : "1"
  },
  "LgRESET2" : {
    "id" : "Lg_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "T1RESET2" : {
    "id" : "T1_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "T2RESET2" : {
    "id" : "T2_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "T3RESET2" : {
    "id" : "T3_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "T4RESET2" : {
    "id" : "T4_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "PRESET2" : {
    "id" : "P_2",
    "alarmType" : "RESET",
    "level" : "2"
  },
  "URESET2" : {
```

```

        "id" : "U_2",
        "alarmType" : "RESET",
        "level" : "2"
    },
    "IRESET2" : {
        "id" : "I_2",
        "alarmType" : "RESET",
        "level" : "2"
    }
}
}
}

```

#### 属性说明

参数	说明
id	标识符（确定报警对象和报警等级）
alarmType	报警类型（"RESET"、"HIGH"、"LOW"均为报警类别，["LgRESET1", "T1RESET1", "T2RESET1", "T3RESET1", "T4RESET1", "PRESET1", "URESET1", "IRESET1", "LgRESET2", "T1RESET2", "T2RESET2", "T3RESET2", "T4RESET2", "PRESET2", "URESET2", "URESET2", "IRESET2", "ULOW1", "UHIGH1", "T1HIGH1", "T2HIGH1", "T3HIGH1", "T4HIGH1", "IHIGH1", "PHIGH1", "LgHIGH1", "ULOW2", "UHIGH2", "T1HIGH2", "T2HIGH2", "T3HIGH2", "T4HIGH2", "IHIGH2", "PHIGH2", "LgHIGH2"]中每个报警类型包含报警对象、报警类别、报警等级）
level	报警等级（1 为预警，2 为报警）  预警在实时数据回到正常范围后，网关上报预警复位，预警自恢复。  报警在触发后即使数据回到正常范围，网关也不会上报复位，需要下发指令进行复位。

故障及断路器状态上报:

```
{
  "msgid" : 3,
  "method" : "alarm",
  "sn" : " ASCB1TEST00003",
  "timestamp" : 1659014114,
  "payload" : {
    "addr" : "1_1",
    "devsn" : "ascb1-12345678",
    "alarmType" : ["LgFauSWITCH","T1FauSWITCH","T2FauSWITCH","T3FauSWITCH",
    ,"T4FauSWITCH","RlyFauSWITCH","RlySWITCH","RlyRepSWITCH","LockSWITCH"]
    "LgFauSWITCH" : {
      "id" : "LgFau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "T1FauSWITCH" : {
      "id" : "T1Fau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "T2FauSWITCH" : {
      "id" : "T2Fau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "T3FauSWITCH" : {
      "id" : "T3Fau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "T4FauSWITCH" : {
      "id" : "T4Fau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "RlyFauSWITCH" : {
      "id" : "RlyFau",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "RlySWITCH" : {
      "id" : "Rly",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    }
  }
}
```

```
    },
    "RlyRepSWITCH" : {
      "id" : "RlyRep",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    },
    "LockSWITCH" : {
      "id" : "Lock",
      "alarmType" : "NOTICE",
      "currentValue" : "1"
    }
  }
}
```

断电上报:

```
{
  "msgid": 123,
  "method": "notice",
  "timestamp": 1638869890,
  "sn": "ASCB1TEST00003",
  "payload": {
    "sn": "ASCB1TEST00003",
    "noticeType": [
      "GW_PWROFF"
    ],
    "GW_PWROFF": {
      "timestamp": 1638869890,
      "detail": ""
    }
  }
}
```

属性说明

参数	说明
id	标识符（确定报警对象）
alarmType	报警类型（"NOTICE"为报警类别， ["LgFauSWITCH","T1FauSWITCH","T2FauSWITCH","T3FauSWITCH","T4FauSWITCH","RlyFauSWITCH","RlySWITCH","RlyRe

	pSWITCH","LockSWITCH"]中每个报警类型包含报警对象、报警类别、报警值)
currentValue	报警对象为 LgFauSWITCH、T1FauSWITCH、T2FauSWITCH、T3FauSWITCH、T4FauSWITCH 时，1 为故障状态，0 为正常状态 报警对象为 RlyFauSWITCH 时，1 为断路器故障，0 为断路器正常 报警对象为 RlySWITCH 时，1 为断路器合闸，0 为断路器分闸 报警对象为 RlyRepSWITCH 时，1 为检修打开，0 为检修关闭 报警对象为 LockSWITCH 时，1 为锁定打开，0 为锁定关闭

## 6) 操作 operate

### 6.1 复位

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "Reset": "1"
  }
}
```

### 6.2 漏电自检

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "SelChk": "1"
  }
}
```

### 6.3 检修

检修开：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "RlyRep": "1"
  }
}
```

检修关：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "RlyRep": "0"
  }
}
```

检修状态：断路器无法进行手动合闸，需要本地、远程解除检修状态，或者下发强制合闸指令才能进行合闸。（本地解除检修状态需长按断路器 ON/OFF 按键 5 秒，听到电机转动即为解除检修成功）

### 6.4 分合闸

分闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "Switch": "0"
  }
}
```

```
}
```

合闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "Switch": "1"
  }
}
```

强制分闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "ForceSwitch": "0"
  }
}
```

强制合闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "ForceSwitch": "1"
  }
}
```

强制分合闸：在断路器检修状态、断路器本地锁定（断路器拨动开关处于锁定端）

状态下，均能对断路器进分合闸操作。

本地锁定：禁止远程对断路器下发一般控制指令，强制控制指令仍能生效。

广播合闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "AllSwitch": "1"
  }
}
```

广播分闸：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "AllSwitch": "0"
  }
}
```

广播分合闸：仅支持对网关下所有断路器进行统一操作，不支持仅对部分操作。

6.5 设置保护参数：

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00003",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",

```



"UHighSw" : "1",  
"UHighRlyOff" : "1",  
"UHighRlyRep" : "0",  
"UHighTim" : "5.0",  
"UHighVal02" : "120.0",  
"UHighVal01" : "110.0",  
"ULowSw" : "1",  
"ULowRlyOff" : "1",  
"ULowRlyRep" : "0",  
"ULowTim" : "5.0",  
"ULowVal02" : "80.0",  
"ULowVal01" : "90.0",  
"IHighSw" : "1",  
"IHighRlyOff" : "1",  
"IHighRlyRep" : "0",  
"IHighTim" : "5.0",  
"IHighVal02" : "105.0",  
"IHighVal01" : "95.0",  
"PHighSw" : "1",  
"PHighRlyOff" : "1",  
"PHighRlyRep" : "0",  
"PHighTim" : "5.0",  
"PHighVal02" : "105.0",  
"PHighVal01" : "95.0",  
"LgHighSw" : "1",  
"LgHighRlyOff" : "1",  
"LgHighRlyRep" : "0",  
"LgHighTim" : "5.0",  
"LgHighVal02" : "30",  
"LgHighVal01" : "20",  
"T1HighSw" : "1",  
"T1HighRlyOff" : "1",  
"T1HighRlyRep" : "0",  
"T1HighTim" : "5.0",  
"T1HighVal02" : "100",  
"T1HighVal01" : "80",  
"T2HighSw" : "1",  
"T2HighRlyOff" : "1",  
"T2HighRlyRep" : "0",  
"T2HighTim" : "5.0",  
"T2HighVal02" : "100",  
"T2HighVal01" : "80",  
"T3HighSw" : "1",  
"T3HighRlyOff" : "1",

```
"T3HighRlyRep" : "0",  
"T3HighTim" : "5.0",  
"T3HighVal02" : "100",  
"T3HighVal01" : "80",  
"T4HighSw" : "1",  
"T4HighRlyOff" : "1",  
"T4HighRlyRep" : "0",  
"T4HighTim" : "5.0",  
"T4HighVal02" : "100",  
"T4HighVal01" : "80",  
}  
}
```

## 6.6 设置时控参数

定时控制:

2023.2.23 8:00 合闸、2023.2.23 9:00 分闸、2023.2.23 10:00 合闸、2023.2.23  
11:00 分闸、2023.2.23 12:00 合闸、2023.2.23 13:00 分闸

```
{  
  "msgid": "123",  
  "method": "operate",  
  "sn": "ASCB1TEST00114",  
  "timestamp": 1638869890,  
  "payload": {  
    "addr": "1_1",  
    "Tim1Mode": "2",  
    "Tim1Value": "1",  
    "Tim1Year": "2023",  
    "Tim1Month": "02",  
    "Tim1Day": "23",  
    "Tim1Hour": "08",  
    "Tim1Minute": "00",  
    "Tim1Second": "00",  
    "Tim1Ch": [ "1_1" ],  
    "Tim2Mode": "2",  
    "Tim2Value": "0",  
    "Tim2Year": "2023",  
    "Tim2Month": "02",  
    "Tim2Day": "23",  
    "Tim2Hour": "09",  
  }  
}
```

```
"Tim2Minute" : "00",
"Tim2Second" : "00",
"Tim2Ch" : [ "1_1" ],
"Tim3Mode" : "2",
"Tim3Value" : "1",
"Tim3Year" : "2023",
"Tim3Month" : "02",
"Tim3Day" : "23",
"Tim3Hour" : "10",
"Tim3Minute" : "00",
"Tim3Second" : "00",
"Tim3Ch" : [ "1_1" ],
"Tim4Mode" : "2",
"Tim4Value" : "0",
"Tim4Year" : "2023",
"Tim4Month" : "02",
"Tim4Day" : "23",
"Tim4Hour" : "11",
"Tim4Minute" : "00",
"Tim4Second" : "00",
"Tim4Ch" : [ "1_1" ],
"Tim5Mode" : "2",
"Tim5Value" : "1",
"Tim5Year" : "2023",
"Tim5Month" : "02",
"Tim5Day" : "23",
"Tim5Hour" : "12",
"Tim5Minute" : "00",
"Tim5Second" : "00",
"Tim5Ch" : [ "1_1" ],
"Tim6Mode" : "2",
"Tim6Value" : "0",
"Tim6Year" : "2023",
"Tim6Month" : "02",
"Tim6Day" : "23",
"Tim6Hour" : "13",
"Tim6Minute" : "00",
"Tim6Second" : "00",
"Tim6Ch" : [ "1_1" ]
}
}
```

周期控制:

每周一到周五 8:00 合闸、9:00 分闸、10:00 合闸、11:00 分闸、12:00 合闸、13:00 分闸

```
{
  "msgid": "123",
  "method": "operate",
  "sn": "ASCB1TEST00114",
  "timestamp": 1638869890,
  "payload": {
    "addr": "1_1",
    "Tim1Mode": "1",
    "Tim1Value": "1",
    "Tim1SunEn": "0",
    "Tim1MonEn": "1",
    "Tim1TueEn": "1",
    "Tim1WedEn": "1",
    "Tim1ThurEn": "1",
    "Tim1FriEn": "1",
    "Tim1SatEn": "0",
    "Tim1Hour": "08",
    "Tim1Minute": "00",
    "Tim1Second": "00",
    "Tim1Ch": [ "1_1" ],
    "Tim2Mode": "1",
    "Tim2Value": "0",
    "Tim2SunEn": "0",
    "Tim2MonEn": "1",
    "Tim2TueEn": "1",
    "Tim2WedEn": "1",
    "Tim2ThurEn": "1",
    "Tim2FriEn": "1",
    "Tim2SatEn": "0",
    "Tim2Hour": "09",
    "Tim2Minute": "00",
    "Tim2Second": "00",
    "Tim2Ch": [ "1_1" ],
    "Tim3Mode": "1",
    "Tim3Value": "1",
    "Tim3SunEn": "0",
    "Tim3MonEn": "1",
    "Tim3TueEn": "1",
    "Tim3WedEn": "1",
    "Tim3ThurEn": "1",
```

```
"Tim3FriEn" : "1",
"Tim3SatEn" : "0",
"Tim3Hour" : "10",
"Tim3Minute" : "00",
"Tim3Second" : "00",
"Tim3Ch" : [ "1_1" ],
"Tim4Mode" : "1",
"Tim4Value" : "0",
"Tim4SunEn" : "0",
"Tim4MonEn" : "1",
"Tim4TueEn" : "1",
"Tim4WedEn" : "1",
"Tim4ThurEn" : "1",
"Tim4FriEn" : "1",
"Tim4SatEn" : "0",
"Tim4Hour" : "11",
"Tim4Minute" : "00",
"Tim4Second" : "00",
"Tim4Ch" : [ "1_1" ],
"Tim5Mode" : "1",
"Tim5Value" : "1",
"Tim5SunEn" : "0",
"Tim5MonEn" : "1",
"Tim5TueEn" : "1",
"Tim5WedEn" : "1",
"Tim5ThurEn" : "1",
"Tim5FriEn" : "1",
"Tim5SatEn" : "0",
"Tim5Hour" : "12",
"Tim5Minute" : "00",
"Tim5Second" : "00",
"Tim5Ch" : [ "1_1" ],
"Tim6Mode" : "1",
"Tim6Value" : "0",
"Tim6SunEn" : "0",
"Tim6MonEn" : "1",
"Tim6TueEn" : "1",
"Tim6WedEn" : "1",
"Tim6ThurEn" : "1",
"Tim6FriEn" : "1",
"Tim6SatEn" : "0",
"Tim6Hour" : "13",
"Tim6Minute" : "00",
"Tim6Second" : "00",
```

```
"Tim6Ch": [ "1_1" ]
}
}
```

## 6.7 设置网络参数（IP、端口号、域名）

```
{
  "msgid":"123",
  "method":"operate",
  "sn":"ASCB1TEST00114",
  "timestamp":1638869990,
  "payload":{
    "addr":"1_1",
    "ipaddr":"118.190.162.175",
    "ipport":"8160",
    "domain":"acrel.cn"
  }
}
```

## 6.8 设置 MQTT 参数（用户名、密码、clientid）

```
{
  "msgid":"123",
  "method":"operate",
  "sn":"ASCB1TEST00114",
  "timestamp":1638869990,
  "payload":{
    "addr":"1_1",
    "username":"acrel",
    "password":"acrel",
    "clientid":"123456"
  }
}
```

## 属性说明

参数	说明
payload	表示需要下发给设备的指令内容，其中的属性属于业务层协议的范畴。

操作指令的网关回复如下：

```
{
  "msgid":"123",
  "method":"operate",
  "sn":"ASCB1TEST00114",
  "res":1,
  "timestamp":1662353877
}
```

5. 命名规范

基础电参量				
类型	名称	含义	数据类型	单位
电压	Ua	A 相电压	0.1	V
	Ub	B 相电压	0.1	V
	Uc	C 相电压	0.1	V
	Uab	AB 线电压	0.1	V
	Ubc	BC 线电压	0.1	V
	Uca	CA 线电压	0.1	V
	U	电压	0.1	V
	U0	零序电压	0.1	V
电流	Ia	A 相电流	0.01	A
	Ib	B 相电流	0.01	A
	Ic	C 相电流	0.01	A
	Iab	AB 线电流	0.01	A
	Ibc	BC 线电流	0.01	A
	Ica	CA 线电流	0.01	A
	I0	零序电流	0.01	A

漏电流	Lg	漏电流	1	mA
功率	P	总有功功率	0.001	kW
	Pa	A 相有功功率	0.001	kW
	Pb	B 相有功功率	0.001	kW
	Pc	C 相有功功率	0.001	kW
	Q	总无功功率	0.001	kVar
	Qa	A 相无功功率	0.001	kVar
	Qb	B 相无功功率	0.001	kVar
	Qc	C 相无功功率	0.001	kVar
	S	总视在功率	0.001	kVA
	Sa	A 相视在功率	0.001	kVA
	Sb	B 相视在功率	0.001	kVA
	Sc	C 相视在功率	0.001	kVA
	PF	总功率因数	0.001	
	PFa	A 相功率因数	0.001	
	PFb	B 相功率因数	0.001	
	PFc	C 相功率因数	0.001	
不平衡率	Uub	电压不平衡	0.1	%
	Iub	电流不平衡	0.1	%
频率	Freq	电压频率	0.01	Hz
变比	PT	PT	1	
	CT	CT	1	
	T1	温度 1	0.1	℃
	T2	温度 2	0.1	℃



	T3	温度 3	0.1	℃
	T4	温度 4	0.1	℃
量程	Vrange	电压量程	220	V
	Irangle	电流量程	5	I
线制	Line	线制	3P4L/4P3L	

电能				
类型	名称	含义	数据类型	单位
电能	EPI	当前正向总有功电能	0.01	kWh
	EPE	当前反向总有功电能	0.01	kWh
	EQC	当前正向总无功电能	0.01	kWh
	EQL	当前反向总无功电能	0.01	kWh
	ES	当前总视在电能	0.01	kWh

告警设置					
类型	名称	名称	含义	数据类型	单位
电压	AU	UHighSw	过压报警开关	0/1	
		UHighTim	过压报警时间	0.1	S
		UHighVal01	过压预警值	120	%
		UHighVal02	过压报警值	110	%
		UHighRlyOff	过压关联跳闸	0/1	
		UHighRlyRep	过压关联检修	0/1	
		ULowSw	欠压报警开关	0/1	
		ULowTim	欠压报警时间	0.1	S
		ULowVal01	欠压预警值	120	%

		ULowVal02	欠压报警值	110	%
		ULowRlyOff	欠压关联跳闸	0/1	
		ULowRlyRep	欠压关联检修	0/1	
电流	AI	IHighSw	过流报警开关	0/1	
		IHighTim	过流报警时间	0.1	S
		IHighVal01	过流预警值	120	%
		IHighVal02	过流报警值	110	%
		IHighRlyOff	过流关联跳闸	0/1	
		IHighRlyRep	过流关联检修	0/1	
功率	AP	PHighSw	过功率报警开关	0/1	
		PHighTim	过功率报警时间	0.1	S
		PHighVal01	过功率预警值	120	%
		PHighVal02	过功率报警值	110	%
		PHighRlyOff	过功率关联跳闸	0/1	
		PHighRlyRep	过功率关联检修	0/1	
漏电	ALg	LgHighSw	过漏电报警开关	0/1	
		LgHighTim	过漏电报警时间	0/1	S
		LgHighVal01	过漏电预警值	0.1	mA
		LgHighVal02	过漏电报警值	1000	mA
		LgHighRlyOff	过漏电关联跳闸	2000	
		LgHighRlyRep	过漏电关联检修	0/1	
温度 1	AT1	T1HighSw	过温报警开关	0/1	
		T1HighTim	过温报警时间	0.1	S
		T1HighVal01	过温预警值	60	℃

		T1HighVal02	过温报警值	70	℃
		T1HighRlyOff	过温关联跳闸	0/1	
		T1HighRlyRep	过温关联检修	0/1	
温度 2	AT2	T2HighSw	过温报警开关	0/1	
		T2HighTim	过温报警时间	0.1	S
		T2HighVal01	过温预警值	60	℃
		T2HighVal02	过温报警值	70	℃
		T2HighRlyOff	过温关联跳闸	0/1	
		T2HighRlyRep	过温关联检修	0/1	
温度 3	AT3	T3HighSw	过温报警开关	0/1	
		T3HighTim	过温报警时间	0.1	S
		T3HighVal01	过温预警值	60	℃
		T3HighVal02	过温报警值	70	℃
		T3HighRlyOff	过温关联跳闸	0/1	
		T3HighRlyRep	过温关联检修	0/1	
温度 4	AT4	T4HighSw	过温报警开关	0/1	
		T4HighTim	过温报警时间	0.1	S
		T4HighVal01	过温预警值	60	℃
		T4HighVal02	过温报警值	70	℃
		T4HighRlyOff	过温关联跳闸	0/1	
		T4HighRlyRep	过温关联检修	0/1	

告警设置中开头相同的字段必须同时下发网关才会相应并回复，例如：**UHighSw**、**UHighTim**、**UHighVal01**、**UHighVal02**、**UHighRlyOff**、**UHighRlyRep**，字段都以

UHigh 开头，需要一起下发。

故障设置				
类型	名称	含义	数据类型	单位
故障	FaultSw	故障开关	0/1	

其他				
类型	名称	含义	数据类型	单位
下发	Silence	消音	0/1	
	SelChk	自检	0/1	
	Reset	复位	0/1	
	RlyRep	检修开关	0/1	
	Switch	分合闸	0/1	
	ForceSwitch	强制分合闸	0/1	
	username	Mqtt 用户名	字符串	
	password	Mqtt 密码	字符串	注：username 和 password 必须同时下发，否则无效
	clientid	Mqtt 客户端 ID	字符串	
	ipport	端口号	字符串	注：ipport 和 ipaddr 必须同时下发，否则无效
	ipaddr	IP 地址	字符串	例：“192.168.249.181”
	time	对时	字符串	例：“1638869890”
	Pass	网关密码	字符串	例“1234”
	AlrRcrCnt	已重合次数	uint16	

上 报	RlySta	分合闸状态	0/1	
	LockSta	本地锁定状态	0/1	
	RlyFauSta	断路器故障状态	0/1	
	T1FauSta	温度 1 故障状态	0/1	
	T2FauSta	温度 2 故障状态	0/1	
	T3FauSta	温度 3 故障状态	0/1	
	T4FauSta	温度 4 故障状态	0/1	
	LgFauSta	漏电故障状态	0/1	
	RlyRepSta	检修状态	0/1	

控制

类型	名称	含义	数据类型	单位
类型	CtrLevel	控制等级	uint16	0: 本地+远控 1: 远控 2:本地
控制	RcrCnt	重合闸次数	uint16	
	RcrDly	重合闸延时	uint16	
	SelChkMode	定时自检	uint16	0:不自检 1: 1 个月自检 2: 2 个月自检
	SelChkDay	定时自检日	uint16	
	SelChkHour	定时自检时	uint16	
	SelChkRec	定时自检恢复	uint16	

时控设置中开头相同的字段必须同时下发网关才会相应并回复，例如：**Tim1Mode**、**Tim1Year**、**Tim1Month**、**Tim1Day**、**Tim1Hour**、**Tim1Minute**、**Tim1Second** 等字段都

以 Tim1 开头，需要一起下发。

时控任务每台断路器独立可设，每台最多支持设置 6 个周期或单次任务。

类型	名称	含义	数据类型	单位
定时控制	Tim1Mode	定时控制 1 模式	uint16	0: 关闭 1: 重复 2: 单次
	Tim1Year	定时控制 1 年	uint16	
	Tim1Month	定时控制 1 月	uint16	
	Tim1Day	定时控制 1 日	uint16	
	Tim1Hour	定时控制 1 时	uint16	
	Tim1Minute	定时控制 1 份	uint16	
	Tim1Second	定时控制 1 秒	uint16	
	Tim1Ch	定时控制 1 地址	/	与 addr 保持一致
	Tim1Value	定时控制 1 值	uint16	0: 分闸；1: 合闸
	Tim1MonEN	定时器 1 周一使能	0/1	
	Tim1TueEN	定时器 1 周二使能	0/1	
	Tim1WedEN	定时器 1 周三使能	0/1	
	Tim1ThurEN	定时器 1 周四使能	0/1	
	Tim1FriEN	定时器 1 周五使能	0/1	
	Tim1SatEN	定时器 1 周六使能	0/1	
	Tim1SunEN	定时器 1 周日使能	0/1	

	Tim2Mode	定时控制 2 模式	uint16	0: 关闭 1: 重复 2: 单次
	Tim2Year	定时控制 2 年	uint16	
	Tim2Month	定时控制 2 月	uint16	
	Tim2Day	定时控制 2 日	uint16	
	Tim2Hour	定时控制 2 时	uint16	
	Tim2Minute	定时控制 2 份	uint16	
	Tim2Second	定时控制 2 秒	uint16	
	Tim2Ch	定时控制 2 地址	/	与 addr 保持一致
	Tim2Value	定时控制 2 值	uint16	0: 分闸; 1: 合闸
	Tim2MonEN	定时器 2 周一使能	0/1	
	Tim2TueEN	定时器 2 周二使能	0/1	
	Tim2WedEN	定时器 2 周三使能	0/1	
	Tim2ThurEN	定时器 2 周四使能	0/1	
	Tim2FriEN	定时器 2 周五使能	0/1	
	Tim2SatEN	定时器 2 周六使能	0/1	
	Tim2SunEN	定时器 2 周日使能	0/1	
	Tim3Mode	定时控制 3 模式	uint16	0: 关闭 1: 重复 2: 单次
	Tim3Year	定时控制 3 年	uint16	
	Tim3Month	定时控制 3 月	uint16	

	Tim3Day	定时控制 3 日	uint16	
	Tim3Hour	定时控制 3 时	uint16	
	Tim3Minute	定时控制 3 份	uint16	
	Tim3Second	定时控制 3 秒	uint16	
	Tim3Ch	定时控制 3 地址	/	与 addr 保持一致
	Tim3Value	定时控制 3 值	uint16	0：分闸；1：合闸
	Tim3MonEN	定时器 3 周一使能	0/1	
	Tim3TueEN	定时器 3 周二使能	0/1	
	Tim3WedEN	定时器 3 周三使能	0/1	
	Tim3ThurEN	定时器 3 周四使能	0/1	
	Tim3FriEN	定时器 3 周五使能	0/1	
	Tim3SatEN	定时器 3 周六使能	0/1	
	Tim3SunEN	定时器 3 周日使能	0/1	
	Tim4Mode	定时控制 4 模式	uint16	0：关闭 1：重复 2：单次
	Tim4Year	定时控制 4 年	uint16	
	Tim4Month	定时控制 4 月	uint16	
	Tim4Day	定时控制 4 日	uint16	
	Tim4Hour	定时控制 4 时	uint16	
	Tim4Minute	定时控制 4 份	uint16	



	Tim4Second	定时控制 4 秒	uint16	
	Tim4Ch	定时控制 4 地址	/	与 addr 保持一致
	Tim4Value	定时控制 4 值	uint16	0：分闸；1：合闸
	Tim4MonEN	定时器 4 周一使能	0/1	
	Tim4TueEN	定时器 4 周二使能	0/1	
	Tim4WedEN	定时器 4 周三使能	0/1	
	Tim4ThurEN	定时器 4 周四使能	0/1	
	Tim4FriEN	定时器 4 周五使能	0/1	
	Tim4SatEN	定时器 4 周六使能	0/1	
	Tim4SunEN	定时器 4 周日使能	0/1	
	Tim5Mode	定时控制 5 模式	uint16	0：关闭 1：重复 2：单次
	Tim5Year	定时控制 5 年	uint16	
	Tim5Month	定时控制 5 月	uint16	
	Tim5Day	定时控制 5 日	uint16	
	Tim5Hour	定时控制 5 时	uint16	
	Tim5Minute	定时控制 5 份	uint16	
	Tim5Second	定时控制 5 秒	uint16	
	Tim5Ch	定时控制 5 地址	/	与 addr 保持一致
	Tim5Value	定时控制 5 值	uint16	0：分闸；1：

			合闸
Tim5MonEN	定时器 5 周一使能	0/1	
Tim5TueEN	定时器 5 周二使能	0/1	
Tim5WedEN	定时器 5 周三使能	0/1	
Tim5ThurEN	定时器 5 周四使能	0/1	
Tim5FriEN	定时器 5 周五使能	0/1	
Tim5SatEN	定时器 5 周六使能	0/1	
Tim5SunEN	定时器 5 周日使能	0/1	
Tim6Mode	定时控制 6 模式	uint16	0: 关闭 1: 重复 2: 单次
Tim6Year	定时控制 6 年	uint16	
Tim6Month	定时控制 6 月	uint16	
Tim6Day	定时控制 6 日	uint16	
Tim6Hour	定时控制 6 时	uint16	
Tim6Minute	定时控制 6 份	uint16	
Tim6Second	定时控制 6 秒	uint16	
Tim6Ch	定时控制 6 地址	/	与 addr 保持一致
Tim6Value	定时控制 6 值	uint16	0: 分闸; 1: 合闸
Tim6MonEN	定时器 6 周一使能	0/1	

	Tim6TueEN	定时器 6 周二使能	0/1	
	Tim6WedEN	定时器 6 周三使能	0/1	
	Tim6ThurEN	定时器 6 周四使能	0/1	
	Tim6FriEN	定时器 6 周五使能	0/1	
	Tim6SatEN	定时器 6 周六使能	0/1	
	Tim6SunEN	定时器 6 周日使能	0/1	

类型	名称	含义
报警复位	LgRESET1	漏电报警 1 复位
	T1RESET1	温度 1 报警 1 复位
	T2RESET1	温度 2 报警 1 复位
	T3RESET1	温度 3 报警 1 复位
	T4RESET1	温度 4 报警 1 复位
	PRESET1	功率报警 1 复位
	URESET1	电压报警 1 复位
	IRESET1	电流报警 1 复位
	LgRESET2	漏电报警 2 复位
	T1RESET2	温度 1 报警 2 复位
	T2RESET2	温度 2 报警 2 复位
	T3RESET2	温度 3 报警 2 复位
	T4RESET2	温度 4 报警 2 复位

	PRESET2	功率报警 2 复位
	URESET2	电压报警 2 复位
	IRESET2	电流报警 2 复位

类型	名称	含义
报警触发	LgHigh1	漏电报警 1
	T1High1	温度 1 报警 1
	T2High1	温度 2 报警 1
	T3High1	温度 3 报警 1
	T4High1	温度 4 报警 1
	PHigh1	功率报警 1
	UHigh1	过压报警 1
	ULow1	欠压报警 1
	IHigh1	电流报警 1
	LgHigh2	漏电报警 2
	T1High2	温度 1 报警 2
	T2High2	温度 2 报警 2
	T3High2	温度 3 报警 2
	T4High2	温度 4 报警 2
	PHigh2	功率报警 2
	UHigh2	过压报警 2
	ULow2	欠压报警 2
	IHigh2	电流报警 2

类型	名称	含义
故障状态上报	LgFauSWITCH	漏电故障状态
	T1FauSWITCH	温度 1 故障状态
	T2FauSWITCH	温度 2 故障状态
	T3FauSWITCH	温度 3 故障状态
	T4FauSWITCH	温度 4 故障状态

	RlyFauSWITCH	断路器故障状态
断路器相关状态	RlySWITCH	断路器状态
	RlyRepSWITCH	检修状态
	LockSWITCH	本地锁定状态

更改记录

修订版次	修订时间	修订条款	修订人
V1.00	2023.07.25		宋志涛
V1.01	2023.10.24	新增断电上报	王瑞
V1.02	2024.4.3	新增部分说明	王瑞