**UP-RFID-RT型综合教学平台**

**执行模块串口协议**

**博创智联科技有限公司**

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**执行模块串口通讯协议**

## **执行模块介绍**

执行模块用于配合RFID模块使用，为RFID的实际应用做扩展。通过给执行模块烧写不同的程序使其充当不同功能的外设部件。

## **串口接口配置**

执行模块使用固定波特率115200,8位数据位，1位停止位。

## **帧结构说明**

**请求帧：**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 |  | NID | STATUS | NC | 0A |

【SOP】帧头，1-Byte， 固定为0xFE

【LEN】数据域长度，1-Byte， 固定为0x03

【CMD】帧命令，1-Byte

H2-Bit(xx00-0000B)：CMD高2位

|  |  |  |
| --- | --- | --- |
| **CMD-MODE** | **MACRO** | **Description** |
| 00 | NC | NC保留 |
| 01 | UNICAST\_REQ | UNICAST单播 |
| 02 | MULTICAST\_REQ | MULTICAST多播 |
| 03 | BROARDCAST\_REQ | BROARDCAST广播 |

L6-Bit(00xx-xxxxB): CMD低六位

|  |  |  |
| --- | --- | --- |
| **CMD-ID** | **MACRO** | **Description** |
| 11 | MODULE\_GET\_INFO | 获得模块状态 |
| 12 | MODULE\_SET\_INFO | 设置模块状态 |
| 30 | MODULE\_ERR\_INFO | 操作错误信息（返回） |

【DATA】数据域，3-Byte

DATA[0]: NID节点ID号

DATA[1]: STATUS节点状态值

DATA[2]: NC保留

【FCS】帧尾，1-Byte， 固定为0x0A

**响应帧：**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE |  |  | NID | ERR-ID | STATUS | 0A |

【SOP】帧头，1-Byte， 固定为0xFE

【LEN】数据域长度，1-Byte

【CMD】帧命令，1-Byte

L6-Bit(00xx-xxxxB): CMD低六位

|  |  |  |
| --- | --- | --- |
| **CMD-ID** | **MACRO** | **Description** |
| 11 | MODULE\_GET\_INFO | 获得模块状态 |
| 12 | MODULE\_SET\_INFO | 设置模块状态 |
| 30 | MODULE\_ERR\_INFO | 操作错误信息（返回） |

【DATA】数据域，(2+n)Byte

DATA[0]: NID模块节点ID号

DATA[1]: 操作结果，见ERROR ID表

DATA[2]: 状态值，长度不确定

【FCS】帧尾，1-Byte， 固定为0x0A

**ERROR ID表：**

|  |  |  |
| --- | --- | --- |
| **ERR-ID** | **MACRO** | **Description** |
| 00 | ERR\_NO | 操作正确OK |
| 01 | ERR\_SET\_INFO | 设置信息错误 |
| 02 | ERR\_GET\_INFO | 获取信息错误 |
| 03 | ERR\_CMD\_ID | 帧命令错误 |

**目前支持模块节点：**

|  |  |  |
| --- | --- | --- |
| **NID** | **MACRO** | **Description** |
| 00 | NODE\_LOCK | 电子锁 |
| 01 | NODE\_GATE | 单舵机闸机（高速闸机控制器） |
| 02 | NODE\_GATE2 | 双舵机闸机（门禁闸机控制器） |

## **指令使用举例**

**打开/关闭 电子锁：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 52 | 00 | 01/00 | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D2 | XX | 01/00 | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 12 | 00 | ERR-ID | 01/00 | 0A |

**打开/关闭 单舵机闸机：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 52 | 01 | 01/00 | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D2 | XX | 01/00 | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 12 | 01 | ERR-ID | 01/00 | 0A |

**打开/关闭 双舵机闸机：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 52 | 02 | 01/00 | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D2 | XX | 01/00 | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 12 | 02 | ERR-ID | 01/00 | 0A |

**获取 电子锁 状态：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 51 | 00 | XX | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D1 | XX | XX | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 11 | 00 | ERR-ID | 01/00 | 0A |

**获取 单舵机闸机 状态：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 51 | 01 | XX | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D1 | XX | XX | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 11 | 01 | ERR-ID | 01/00 | 0A |

**获取 双舵机闸机 状态：**

\*\*单播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 51 | 02 | XX | XX | 0A |

\*\*广播方式\*\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | D1 | XX | XX | XX | 0A |

模块响应(单播/多播相同)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOP** | **LEN** | **CMD** | **DATA** | | | **FCS** |
| FE | 03 | 11 | 02 | ERR-ID | 01/00 | 0A |