## 图像状态

1. PC端APP，周期性扫描读取寄存器状态；判别是否进行图像获取判别，同时把结果写入寄存器

typedef enum

{

HOLE\_STATE\_FREE,

HOLE\_STATE\_EXIST,

CAM\_STATE\_FREE,

CAM\_STATE\_READY,

BALL\_STATE\_OK,

BALL\_STATE\_NG,

}PLC\_FLOW\_OBSERVED\_HOLE\_STATE;

功能03和16；起始地址40001；长度2寄存器

|  |  |  |  |
| --- | --- | --- | --- |
| 40001高位 | 40001低位 | 40002高位 | 40002低位 |
| cam\_one\_result  PCB状态：  HOLE\_STATE\_FREE,  HOLE\_STATE\_EXIST,  读取状态为HOLE\_STATE\_EXIST 时，PC响应：  BALL\_STATE\_OK,  BALL\_STATE\_NG | cam\_state：  PCB状态：  CAM\_STATE\_FREE,  CAM\_STATE\_READY  PC响应：  CAM\_STATE\_FREE | cam\_thr\_result  PCB状态：  HOLE\_STATE\_FREE,  HOLE\_STATE\_EXIST,  读取状态为HOLE\_STATE\_EXIST 时，PC响应：  BALL\_STATE\_OK,  BALL\_STATE\_NG | cam\_two\_result  PCB状态：  HOLE\_STATE\_FREE,  HOLE\_STATE\_EXIST,  读取状态为HOLE\_STATE\_EXIST 时，PC响应：  BALL\_STATE\_OK,  BALL\_STATE\_NG |

## 步进电机（16个端口）

### 写操作（步进电机）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 模式 | 反馈类型 | 运行状态 | 保留 | 目的位置 | 当前位置 | 保留 | 启动频率 | 目标频率 | 变换率（频率） | 运行方向 | 触发信号端口 | 触发信号状态 | 复位长度 | 校验位 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| 参数 | 1 | 16 | 50712+id\*26 | 13 | 26 | 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### 读操作（步进电机）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50712+id\*26 | 13 |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 字节数 | 模式 | 反馈类型 | 运行状态 | 保留 | 目的位置 | 当前位置 | 保留 | 启动频率 | 目标频率 | 变换率（频率） | 运行方向 | 触发信号端口 | 触发信号状态 | 复位长度 | 校验位 |
| **字节位** | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 11 | 15 | 19 | 21 | 23 | 24 | 25 | 26 | 27 |  |
| 字节数 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| 参数 | 1 | 16 | 26 | 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### 写操作（无刷直流电机）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 模式 | 反馈类型 | 运行状态 | 保留 | 目的位置 | 当前位置 | 保留 | 启动频率 | 目标频率  频率 | 变换率（频率）  占空比 | 运行方向 | 触发信号端口 | 触发信号状态 | 复位长度 | 校验位 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| 参数 | 1 | 16 | 50712+id\*26 | 13 | 26 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### 读操作（无刷直流电机）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50712+id\*26 | 13 |  |

## 输入端口（16个端口）

### 写操作

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 步骤 | 反馈类型 | 状态 | 保留 | 保持时间 | 计数器 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 2 | 2 |
| 参数 | 1 | 16 | 50000+id\*10 | 5 | 10 |  |  |  |  |  |  |  |

### 读操作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50000+id\*26 | 5 |  |

## 输出端口（16个端口）

### 写操作

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 步骤 | 反馈类型 | 配置状态 | 保留 | 启动延时时间 | 状态保持时间 | 间隔时间 | 执行次数 | 配置次数 | 输入端口编号 | 输入端口状态 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 1 | 1 | 1 | 1 | 2 |
| 参数 | 1 | 16 | 50256+id\*20 | 10 | 20 | 1 | 0 |  |  |  |  |  |  |  |  |  |  |

### 读操作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50256+id\*20 | 10 |  |

## 直流电机（3个端口）

### 写操作

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 步骤 | 反馈类型 | 方向 | 保留 | 配置速度 | 当前速度 | 启动延时时间 | 状态保持时间 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 2 |
| 参数 | 1 | 16 | 50640+id\*14 | 7 | 14 |  |  |  |  |  |  |  |  |  |

### 读操作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50640+id\*14 | 7 |  |

## 蜂鸣器端口（1个端口）

### 写操作

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 步骤 | 反馈类型 | 配置状态 | 当前状态 | 启动延时时间 | 状态保持时间 | 间隔时间 | 执行次数 | 执行状态 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 1 | 1 | 2 |
| 参数 | 1 | 16 | 50688+id\*0 | 9 | 18 |  |  |  |  |  |  |  |  |  |  |

### 读操作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 50688+id\*0 | 9 |  |

## 存储器

### 写操作

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 字节数 | 数据 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 1 | 16 | 2 |
| 参数 | 1 | 16 | 57344+address | 最大8 | 最大16 | 最大16字节 |  |

### 读操作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 从机地址 | 功能码 | 寄存器地址 | 寄存器数量 | 校验码 |
| 字节数 | 1 | 1 | 2 | 2 | 2 |
| 参数 | 1 | 3 | 57344+address | 最大8 |  |