### 测试大纲

### RTU主站 测试大纲

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| --- | --- | --- | --- | --- | --- | --- |
| **0x01 功能码** | | | | | | |
| **操作类型** | **操作内容** | **请求报文** | **响应报文** | **预期应答** | **实际应答** | **结果分析** |
| 正确报文 | 读第一个线圈 | 01 01 00 00 00 01 FD CA | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 读取正确 |
| 读最后一个线圈 | 01 01 FF FF 00 01 FD EE | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 读取正确 |
| 0000为起始地址  读2000个线圈数据 | 01 01 00 00 07 D0 3F A6 | 01 01 FA 09 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00 BE FB | 01 01 FA 09 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00 BE FB | 01 01 FA 09 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00 BE FB | 读取正确 |
| 响应报文  异常 | 报文字节字段  异常 | 01 01 00 00 00 01 FD CA | 01 01 02 01 90 B8 | 报文的字节字段异常 | 响应报文的字节字段异常 | 处理正确 |
| 报文数据项部分少一位 | 01 01 00 00 00 01 FD CA | 01 01 01 E0 50 | 响应报文长度错误 | 响应报文长度错误 | 处理正确 |
| 报文过短 | 01 01 00 00 00 01 FD CA | 01 01 | 请求帧长度错误 | 请求帧长度错误 | 处理正确 |
| 报文字节数据项异常 | 01 01 00 00 00 09 FC 0C | 01 01 02 01 90 B8 | 响应报文字节数据项异常 | 响应报文字节数据项异常 | 处理正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 01 00 00 00 01 FD CA | 01 02 01 01 60 48 | 收到响应报文：响应报文  功能码非法 | 收到响应报文：响应报文  功能码非法 | 处理正确 |
| 非01功能码 | 01 01 00 00 00 01 FD CA | 01 03 01 01 31 88 | 响应报文的功能码与请求报文不一致 | 响应报文的功能码与请求报文不一致 | 处理正确 |
| 非法数据地址 02 | 超出线圈读取范围读取2个线圈数据 | 01 01 FF FF 00 02 BD EF | 01 81 02 C1 91 | 响应报文功能码与请求报文不一致 | 响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法  数据值  03 | 读取0个线圈数据 | 01 01 00 00 00 00 3C 0A | 01 81 03 00 51 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值 | 异常响应  处理正确 |
| 读取2001个线圈  数据 | 01 01 00 00 07 D1 FE 66 | 01 81 03 00 51 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值 | 异常响应  处理正确 |
| 校验码异常 | 请求报文异常CRC | 01 01 00 00 00 01 FD CA | 01 01 01 01 90 49 | 收到响应报文：响应报文  弹出框显示响应报文CRC校验码异常 | 收到响应报文：响应报文  弹出框显示响应报文CRC校验码异常 | 处理正确 |
| 无关报文 | 响应报文从站地址非本机地址 | 01 01 00 00 00 01 FD CA | 02 01 01 01 90 0C | 收到响应报文：响应报文  弹出框显示该报文的发送从站不是请求的从站 | 收到响应报文：响应报文  弹出框显示该报文的发送从站不是请求的从站 | 处理正确 |
| **0x03 功能码** | | | | | | |
| 正确报文 | 读取第一个寄存器 | 01 03 00 00 00 01 84 0A | 01 03 02 00 01 79 84 | 收到响应报文：响应报文  消息框显示：多寄存器读取成功  成功读取的服务端寄存器数据为：1 | 收到响应报文：响应报文  消息框显示：多寄存器读取成功  成功读取的服务端寄存器数据为：1 | 读取正确 |
| 读取最后寄存器 | 01 03 FF FF 00 01 84 2E | 01 03 02 00 01 79 84 | 收到响应报文：响应报文  消息框显示：多寄存器读取成功  成功读取的服务端寄存器数据为：1 | 收到响应报文：响应报文  消息框显示：多寄存器读取成功  成功读取的服务端寄存器数据为：1 | 读取正确 |
| 0000为起始地址  读取125个寄存器 | 01 03 00 00 00 7D 85 EB | 01 03 FA 01 C8 03 15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00 A4 28 | 收到响应报文：01 03 FA 01 C8 03 15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00 A4 28  收到报文并将读取的数据显示到数据表 | 收到响应报文：01 03 FA 01 C8 03 15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00 A4 28  收到报文并将读取的数据显示到数据表 | 读取正确 |
| 非法功能码 01 | 非01 03 0F 10  功能码 | 01 03 00 00 00 01 84 0A | 01 02 01 01 60 48 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 处理正确 |
| 与请求报文功能码不一致 | 01 03 00 00 00 01 84 0A | 01 03 02 00 01 79 84 | 收到响应报文：响应报文  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框提示响应报文功能码与请求报文不一致 | 处理正确 |
| 非法数据地址 02 | 超出读取范围  读取2个寄存器数据 | 01 03 FF FF 00 02 C4 2F | 01 83 02 C0 F1 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法数据值 03 | 读取0个寄存器数量 | 01 03 00 00 00 00 45 CA | 01 83 03 01 31 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 读取126个寄存器 | 01 03 00 00 00 7E C5 EA | 01 83 03 01 31 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 异常  校验码 | 响应异常CRC | 01 03 00 00 00 01 84 0A | 01 03 02 00 01 79 85 | 收到响应报文：响应报文  弹出框显示响应报文CRC校验码异常 | 收到响应报文：响应报文  弹出框显示响应报文CRC校验码异常 | 处理正确 |
| 响应报文  异常 | 报文字节字段  异常 | 01 03 00 00 00 01 84 0A | 01 03 03 00 01 28 44 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 处理正确 |
| 报文数据项部分少一位 | 01 03 00 00 00 01 84 0A | 01 03 02 00 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 报文过短 | 01 03 00 00 00 01 84 0A | 01 03 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 报文字节数据项异常 | 01 03 00 00 00 01 84 0A | 01 03 02 A1 31 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 无关报文 | 响应报文从站地址非请求地址 | 01 03 00 00 00 01 84 0A | 02 03 02 00 01 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 处理正确 |
| **0x0F 功能码** | | | | | | |
| 正确报文 | 写一个线圈 | 01 0F 00 02 00 01 01 01  96 97 | 01 0F 00 02 00 01 35 CB | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 写最后一个线圈 | 01 0F FF FF 00 01 01 01  EF 4C | 01 0F FF FF 00 01 94 2F | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 0000为起始地址  写1968个线圈 | 01 0F 00 00 07 B0 F6 0A 00 00 01 00 02 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 2F BD | 01 0F 00 00 07 B0 56 4F | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 0F 00 02 00 01 01 01 | 01 04 00 02 00 01 90 0A | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 处理正确 |
| 非法数据地址 02 | 超出写入范围  写2个线圈数据 | 01 0F FF FF 00 02 01 04  DF 4F | 01 8F 02 C5 F1 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 非法数据值 03 | 写0个线圈 | 01 0F 00 02 00 00 00 00  07 07 | 01 8F 03 04 31 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 0000为起始地址  写1969个线圈 | 01 0F 00 00 07 B1 F7 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 E0 42 | 01 8F 03 04 31 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 数据项  异常 | 起始地址异常 | 01 0F 00 00 00 01 01 01 EF 57 | 01 0F 00 01 00 01 C5 CB | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 处理正确 |
| 读取数量异常 | 01 0F 00 00 00 01 01 01 EF 57 | 01 0F 00 00 00 02 D4 0A | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 处理正确 |
| 响应报文异常 | 报文数据项异常 | 01 0F 00 00 00 01 01 01 EF 57 | 01 0F 00 00 01 D4 0A | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |
| 报文过短 | 01 0F 00 00 00 01 01 01 EF 57 | 01 0F | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |
| **0x10 功能码** | | | | | | |
| 正确报文 | 写第一个寄存器 | 01 10 00 01 00 01 02 04 D2  25 1C | 01 10 00 01 00 01 50 09 | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 写最后一个寄存器 | 01 10 FF FF 00 01 02 04 D2 3F CD | 01 10 FF FF 00 01 01 ED | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 00 00为起始地址  写123个寄存器 | 01 10 00 00 00 7B F6 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 E2 F1 | 01 10 00 00 00 7B 80 2A | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 02 00 00 00 01 02 03 15 E7 BA | 01 82 01 81 60 | 收到响应报文：响应报文  弹出框提示该功能码与请求报文功能码不一致 | 收到响应报文：响应报文  弹出框提示该功能码与请求报文功能码不一致 | 异常响应  处理正确 |
| 非法数据地址 02 | 超出写入范围  写2个线圈数据 | 01 10 FF FF 00 02 04 01 3C 02 C5 F9 9C | 01 90 02 CD C1 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法数据值 03 | 写0个寄存器 | 01 10 00 01 00 00 00 00 00 00 90 06 | 01 90 03 0C 01 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写入多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 00 00 为起始地址  写124个寄存器 | 01 10 00 00 00 7C F8 10 10 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 11 01 79 E1 | 01 90 03 0C 01 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写入多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 数据项  异常 | 起始地址异常 | 01 10 00 01 00 01 02 04 D2  25 1C | 01 10 00 00 00 02 41 C8 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 处理正确 |
| 读取数量异常 | 01 10 00 01 00 01 02 04 D2  25 1C | 01 10 00 01 00 03 D1 C8 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 处理正确 |
| 响应报文  异常 | 报文数据项异常 | 01 10 00 00 00 01 02 01 0A 27 C7 | 01 10 00 00 01 DC C0 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |
| 报文过短 | 01 10 00 00 00 01 02 01 0A 27 C7 | 01 10 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |

### TCP主站 测试大纲

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| --- | --- | --- | --- | --- | --- | --- |
| **0x01 功能码** | | | | | | |
| **操作类型** | **操作内容** | **请求报文** | **响应报文** | **预期应答** | **实际应答** | **结果分析** |
| 正确报文 | 读取第一个线圈 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 01 01 01 00 | 收到回复：响应报文  显示读取成功并显示读取的线圈数据为：0 | 收到回复：00 01 00 00 00 04 01 01 01 00  显示读取成功并显示读取的线圈数据为：0 | 读取正确 |
| 读最后一个线圈 | 00 01 00 00 00 06 01 01 FF FF 00 01 | 00 01 00 00 00 04 01 01 01 00 | 收到回复：响应报文  显示读取成功并显示读取的线圈数据为：0 | 收到回复：00 01 00 00 00 04 01 01 01 00  显示读取成功并显示读取的线圈数据为：0 | 读取正确 |
| 0000 为起始地址  读2000个线圈数据 | 00 01 00 00 00 06 01 01 00 00 07 D0 | 00 01 00 00 00 FD 01 01 FA E8 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00 | 收到回复：00 01 00 00 00 FD 01 01 FA E8 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00  消息框收到响应报文并显示到线圈数据表 | 收到回复：00 01 00 00 00 FD 01 01 FA E8 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 00 00 00  消息框收到响应报文并显示到线圈数据表 | 读取正确 |
| 响应报文合法性判断 | 事务标识符  不正确 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 02 00 00 00 04 01 01 01 00 | 收到响应报文：响应报文  弹出框：响应报文不是请求报文的响应报文 | 收到响应报文：响应报文  弹出框：响应报文不是请求报文的响应报文 | 处理正确 |
| 协议标识符错误 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 01 00 04 01 01 01 00 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 处理正确 |
| 长度字段异常 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 05 01 01 01 01 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 处理正确 |
| 从站地址异常 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 02 01 01 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 处理正确 |
| 功能码异常 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 01 03 01 01 | 收到响应报文：响应报文  消息框响应报文的功能码与请求报文不一致 | 收到响应报文：响应报文  消息框响应报文的功能码与请求报文不一致 | 处理正确 |
| 响应报文长度异常 | 报文字节字段  异常 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 05 01 01 02 01 00 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 处理正确 |
| 报文数据项部分少一位 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 03 01 01 | 收到响应报文：响应报文  弹出框提示响应报文长度错误 | 收到响应报文：响应报文  弹出框提示响应报文长度错误 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 03 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 报文字节数据项异常 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 05 01 01 01 01 00 | 收到响应报文：响应报文  弹出框提示响应报文自身的字节数据项异常 | 收到响应报文：响应报文  弹出框提示响应报文自身的字节数据项异常 | 处理正确 |
| 非法功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 01 02 01 01 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 处理正确 |
| 与请求报文功能码不一致 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 01 03 01 01 | 收到响应报文：响应报文  弹出框响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框响应报文功能码与请求报文不一致 | 处理正确 |
| 非法数据地址 02 | 超出读取范围  读取2个线圈  数据 | 00 01 00 00 00 06 01 01 FF FF 00 02 | 00 01 00 00 00 03 01 81 02 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法数据值 03 | 读取0个线圈数据 | 00 01 00 00 00 06 01 01 00 00 00 00 | 00 01 00 00 00 03 01 81 03 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 读取2001个线圈  数据 | 00 01 00 00 00 06 01 01 00 00 07 D1 | 00 01 00 00 00 03 01 81 03 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 无关报文 | 响应报文从站地址非请求地址 | 00 01 00 00 00 06 01 01 00 00 00 03 | 00 01 00 00 00 04 02 01 01 01 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 处理正确 |
| **0x03 功能码** | | | | | | |
| 正确报文 | 读取第一个寄存器 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 05 01 03 02 00 01 | 收到响应报文：响应报文  显示多寄存器读取成功并显示读取的寄存器数据为：1 | 收到响应报文：响应报文  显示多寄存器读取成功并显示读取的寄存器数据为：1 | 读取正确 |
| 读取最后寄存器 | 00 01 00 00 00 06 01 03 FF FF 00 01 | 00 01 00 00 00 05 01 03 02 FF 02 | 收到响应报文：响应报文  显示多寄存器读取成功并显示读取的寄存器数据为：65528 | 收到响应报文：响应报文  显示多寄存器读取成功并显示读取的寄存器数据为：65528 | 读取正确 |
| 0000为起始地址  读取125个寄存器 | 00 01 00 00 00 06 01 03 00 00 00 7D | 00 01 00 00 00 FD 01 03 FA 00 7B 0C 18 00 7B 0C 18 03 15 02 32 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00 | 收到响应报文： 00 01 00 00 00 FD 01 03 FA 00 7B 0C 18 00 7B 0C 18 03 15 02 32 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00  消息框收到响应报文并将读取的寄存器数据显示到寄存器数据表 | 收到响应报文：00 01 00 00 00 FD 01 03 FA 00 7B 0C 18 00 7B 0C 18 03 15 02 32 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 0C 00 7D 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 04 E9 00 00 00 00  消息框收到响应报文并将读取的寄存器数据显示到寄存器数据表 | 读取正确 |
| 响应报文合法性判断 | 事务标识符  不正确 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 02 00 00 00 05 01 03 02 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求报文的响应报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求报文的响应报文 | 处理正确 |
| 协议标识符错误 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 01 00 05 01 03 02 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 处理正确 |
| 长度字段异常 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 06 01 03 02 00 01 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 处理正确 |
| 从站地址异常 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 05 02 03 02 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 处理正确 |
| 功能码异常 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 04 01 01 01 01 | 收到响应报文：响应报文  弹出框提示响应报文的功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框提示响应报文的功能码与请求报文不一致 | 处理正确 |
| 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 05 01 05 02 00 01 | 收到响应报文：响应报文  弹出框提示该报文功能码无法判断 | 收到响应报文：响应报文  弹出框提示该报文功能码无法判断 | 处理正确 |
| 响应报文长度异常 | 报文字节字段  异常 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 05 01 01 03 01 00 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 收到响应报文：响应报文  弹出框提示响应报文的字节字段异常 | 处理正确 |
| 报文数据项部分少一位 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 03 01 03 | 收到响应报文：响应报文  弹出框提示响应报文长度错误 | 收到响应报文：响应报文  弹出框提示响应报文长度错误 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 03 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 报文字节数据项异常 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 05 01 03 01 01 00 | 收到响应报文：响应报文  弹出框提示响应报文自身的字节数据项异常 | 收到响应报文：响应报文  弹出框提示响应报文自身的字节数据项异常 | 处理正确 |
| 非法功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 04 01 02 01 01 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 处理正确 |
| 与请求报文功能码不一致 | 00 01 00 00 00 06 01 03 00 00 00 01 | 00 01 00 00 00 04 01 01 01 01 | 收到响应报文：响应报文  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框提示响应报文功能码与请求报文不一致 | 处理正确 |
| 非法数据地址 02 | 超出读取范围  读取2个线圈  数据 | 00 01 00 00 00 06 01 03 FF FF 00 02 | 00 01 00 00 00 03 01 83 02 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法数据值 03 | 读取0个线圈数据 | 00 01 00 00 00 06 01 03 00 00 00 00 | 00 01 00 00 00 03 01 83 03 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 读取2001个线圈  数据 | 00 01 00 00 00 06 01 03 00 00 07 D1 | 00 01 00 00 00 03 01 83 03 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 无关报文 | 响应报文从站地址非请求地址 | 00 01 00 00 00 06 01 03 00 00 00 03 | 00 01 00 00 00 04 02 03 06 00 01 00 02 00 03 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 收到响应报文：响应报文  弹出框提示响应报文的发送从站不是请求的从站 | 处理正确 |
| **0x0F 功能码** | | | | | | |
| 正确报文 | 写一个线圈 | 00 01 00 00 00 08 01 0F 00 02 00 01 01 01 | 00 01 00 00 00 06 01 0F 00 02 00 01 | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 写最后一个线圈 | 00 01 00 00 00 08 01 0F FF FF 00 01 01 01 | 00 01 00 00 00 06 01 0F FF FF 00 01 | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 00 00 为起始地址  写1968个线圈 | 00 01 00 00 00 FD 01 0F 00 00 07 B0 F6 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 | 00 01 00 00 00 06 01 0F 00 00 07 B0 | 收到响应报文：00 01 00 00 00 06 01 0F 00 00 07 B0  消息框显示：写入成功 | 收到响应报文：00 01 00 00 00 06 01 0F 00 00 07 B0  消息框显示：写入成功 | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 08 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 06 01 02 00 00 00 01 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 收到响应报文：响应报文  弹出框提示该功能码无法识别 | 处理正确 |
| 非法数据地址 02 | 超出写入范围  写2个线圈数据 | 00 01 00 00 00 08 01 0F FF FF 00 02 01 04 | 00 01 00 00 00 03 01 8F 02 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：读多个线圈请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 非法数据值 03 | 写0个线圈 | 00 01 00 00 00 08 01 0F 00 02 00 00 00 00 | 00 01 00 00 00 03 01 8F 03 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 00 00为起始地址  写1969个线圈 | 00 01 00 00 00 FE 01 0F 00 00 07 B1 F7 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 | 00 01 00 00 00 03 01 8F 03 | 消息框显示：写入多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 消息框显示：读多个线圈请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  正确 |
| 响应报文合法性判断 | 事务标识符  不正确 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 02 00 00 00 06 01 0F 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求报文的响应报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求报文的响应报文 | 处理正确 |
| 协议标识符错误 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 01 00 06 01 0F 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 处理正确 |
| 长度字段异常 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 05 01 0F 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 处理正确 |
| 从站地址异常 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 06 02 0F 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 处理正确 |
| 功能码异常 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 06 01 10 00 00 00 01 | 收到响应报文：响应报文  弹出框响应报文的功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框提示响应报文的功能码与请求报文不一致 | 处理正确 |
| 响应报文长度异常 | 报文数据项部分少一位 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 05 01 0F 00 00 00 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 03 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 数据项  异常 | 起始地址异常 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 06 01 10 00 01 00 01 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 处理正确 |
| 读取数量异常 | 00 01 00 00 00 06 01 0F 00 00 00 01 01 01 | 00 01 00 00 00 06 01 10 00 00 00 02 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 处理正确 |
| **0x10 功能码** | | | | | | |
| 正确报文 | 写第一个寄存器 | 00 01 00 00 00 09 01 10 00 01 00 01 02 04 D2 | 00 01 00 00 00 06 01 10 00 01 00 01 | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 写最后一个寄存器 | 00 01 00 00 00 09 01 10 FF FF 00 01 02 04 D2 | 00 01 00 00 00 06 01 10 FF FF 00 01 | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 00 00为起始地址  写123个寄存器 | 00 01 00 00 00 FD 01 10 00 00 00 7B F6 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 | 00 01 00 00 00 06 01 10 00 00 00 7B | 收到响应报文：响应报文  消息框显示：写入成功 | 收到响应报文：响应报文  消息框显示：写入成功 | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 08 01 10 00 00 00 01 01 01 | 00 01 00 00 00 08 01 0F 00 00 00 01 | 收到响应报文：响应报文  弹出框提示该功能码与请求报文功能码不一致 | 收到响应报文：响应报文  弹出框提示该功能码与请求报文功能码不一致 | 处理正确 |
| 非法数据地址 02 | 超出写入范围  写2个寄存器数据 | 00 01 00 00 00 08 01 10 FF FF 00 02 04 00 01 00 02 | 00 01 00 00 00 03 01 8F 02 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：02 非法数据地址  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 非法数据值 03 | 写0个寄存器 | 00 01 00 00 00 08 01 10 00 00 00 00 00 00 | 00 01 00 00 00 03 01 90 03 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写入多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 00 00 为起始地址  写124个寄存器 | 00 01 00 00 00 FF 01 10 00 00 00 7C F8 10 10 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 11 01 | 00 01 00 00 00 03 01 90 03 | 收到响应报文：响应报文  消息框显示：写多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 收到响应报文：响应报文  消息框显示：写入多个寄存器请求报文出现异常  异常码为：03 非法数据值  弹出框提示响应报文功能码与请求报文不一致 | 异常响应  处理正确 |
| 响应报文合法性判断 | 事务标识符  不正确 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 02 00 00 00 06 01 10 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的响应报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的响应报文 | 处理正确 |
| 协议标识符错误 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 01 00 06 01 10 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 收到响应报文：响应报文  弹出框提示响应报文不是Modbus TCP报文 | 处理正确 |
| 长度字段异常 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 05 01 10 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 收到响应报文：响应报文  弹出框提示响应报文长度字段错误 | 处理正确 |
| 从站地址异常 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 06 02 10 00 00 00 01 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 收到响应报文：响应报文  弹出框提示响应报文不是请求的从站报文 | 处理正确 |
| 功能码异常 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 06 01 10 00 00 00 01 | 收到响应报文：响应报文  弹出框响应报文的功能码与请求报文不一致 | 收到响应报文：响应报文  弹出框提示响应报文的功能码与请求报文不一致 | 处理正确 |
| 响应报文长度异常 | 报文数据项部分少一位 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 05 01 10 00 00 00 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 收到响应报文：响应报文  弹出框提示响应报文长度异常 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 03 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 收到响应报文：响应报文  弹出框提示响应报文的长度错误 | 处理正确 |
| 数据项  异常 | 起始地址异常 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 06 01 10 00 01 00 01 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的起始地址字段与请求报文不匹配 | 处理正确 |
| 读取数量异常 | 00 01 00 00 00 06 01 10 00 00 00 01 02 00 01 | 00 01 00 00 00 06 01 10 00 00 00 02 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 收到响应报文：响应报文  弹出框提示收到报文的读取数量与请求报文的不匹配 | 处理正确 |

### RTU从站 测试大纲

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| --- | --- | --- | --- | --- | --- |
| **0x01功能码** | | | | | |
| **操作类型** | **操作内容** | **请求报文** | **预期应答** | **实际应答** | **结果分析** |
| 正确报文 | 读第一个线圈 | 01 01 00 00 00 01 FD CA | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 读取正确 |
| 读最后一个线圈 | 01 01 FF FF 00 01 FD EE | 01 01 01 01 90 48 | 01 01 01 01 90 48 | 读取正确 |
| 0000 为起始地址  读2000个线圈数据 | 01 01 00 00 07 D0 3F A6 | 01 01 FA 01 8E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 88 00 00 00 00 36 E6 | 01 01 FA 01 8E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 88 00 00 00 00 36 E6 | 读取正确 |
| 非法数据地址 02 | 超出线圈读取范围读取2个线圈数据 | 01 01 FF FF 00 02 BD EF | 01 81 02 C1 91 | 01 81 02 C1 91 | 异常响应  正确 |
| 非法  数据值  03 | 读取0个线圈数据 | 01 01 00 00 00 00 3C 0A | 01 81 03 00 51 | 01 81 03 00 51 | 异常响应  正确 |
| 读取2001个线圈  数据 | 01 01 00 00 07 D1 FE 66 | 01 81 03 00 51 | 01 81 03 00 51 | 异常响应  正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 02 00 00 07 D0 7B A6 | 01 82 01 81 60 | 01 82 01 81 60 | 异常响应  正确 |
| 异常  校验码 | 请求报文异常CRC | 01 01 00 00 00 01 C7 F0 | 不响应 | 不响应并弹出框提示CRC  错误 | 处理正确 |
| 请求报文长度异常 | 数据部分多一位 | 01 01 00 00 00 02 03 4B 70 | 不响应 | 不响应并弹出框提示请求报文长度不正确 | 处理正确 |
| 数据部分少一位 | 01 01 00 00 03 58 3D | 不响应 | 不响应并弹出框提示请求报文长度不正确 | 处理正确 |
| 过短异常 | 01 01 00 | 不响应 | 不响应并弹出框提示请求报文长度不正确 | 处理正确 |
| 过短异常 | 01 | 不响应 | 不响应并弹出框提示请求报文长度不正确 | 处理正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 02 01 00 00 00 03 7C 38 | 不响应 | 不响应并无处理操作 | 处理正确 |
| **0x03 功能码** | | | | | |
| 正确报文 | 读最后一个寄存器 | 01 03 FF FF 00 01 84 2E | 01 03 02 04 D2 3A D9 | 01 03 02 04 D2 3A D9 | 读取正确 |
| 00为起始地址  读取125个寄存器 | 01 03 00 00 00 7D 85 EB | 01 03 FA 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 00 00 00 00 16 5E | 01 03 FA 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 00 00 00 00 16 5E | 读取正确 |
| 非法数据地址 02 | 超出读取范围  读取2个寄存器数据 | 01 03 FF FF 00 02 C4 2F | 01 83 02 C0 F1 | 01 83 02 C0 F1 | 异常响应  正确 |
| 非法  数据值  03 | 读取0个寄存器数量 | 01 03 00 00 00 00 45 CA | 01 83 03 01 31 | 01 83 03 01 31 | 异常响应  正确 |
| 读取126个寄存器 | 01 03 00 00 00 7E C5 EA | 01 83 03 01 31 | 01 83 03 01 31 | 异常响应  正确 |
| 从FF FF开始读取0个寄存器 | 01 03 FF FF 00 00 45 EE | 01 83 03 01 31 | 01 83 03 01 31 | 异常响应  正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 02 00 00 07 D0 7B A6 | 01 82 01 81 60 | 01 82 01 81 60 | 异常响应  正确 |
| 异常  校验码 | 请求报文异常CRC | 01 03 00 02 00 03 A4 1E | 无响应 | 无响应并弹出框显示校验码错误 | 处理正确 |
| 报文长度异常 | 数据项多一位 | 01 03 00 02 00 04 05 C8 88 | 无响应 | 无响应并弹出框显示请求报文长度错误 | 处理正确 |
| 数据项少一位 | 01 03 00 02 04 19 27 | 无响应 | 无响应并弹出框显示请求报文长度错误 | 处理正确 |
| 长度过短 | 01 03 40 21 | 无响应 | 无响应并弹出框显示请求报文长度错误 | 处理正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 02 03 00 00 00 03 05 F8 | 不响应 | 不响应并无处理操作 | 处理正确 |
| **0x0F 功能码** | | | | | |
| 正确报文 | 写一个线圈 | 01 0F 00 02 00 01 01 01  96 97 | 01 0F 00 02 00 01 35 CB | 01 0F 00 02 00 01 35 CB | 写入正确 |
| 写最后一个线圈 | 01 0F FF FF 00 01 01 01  EF 4C | 01 0F FF FF 00 01 94 2F | 01 0F FF FF 00 01 94 2F | 写入正确 |
| 00 00 为起始地址  写1968个线圈 | 01 0F 00 00 07 B0 F6 0A 00 00 01 00 02 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 2F BD | 01 0F 00 00 07 B0 56 4F | 01 0F 00 00 07 B0 56 4F | 写入正确 |
| 非法数据地址 02 | 超出写入范围  写2个线圈数据 | 01 0F FF FF 00 02 01 04  DF 4F | 01 8F 02 C5 F1 | 01 8F 02 C5 F1 | 异常响应  正确 |
|  |  |  |  |  |  |
| 00 02为起始地址  写0个线圈 | 01 0F 00 02 00 00 00 00  07 07 | 01 8F 03 04 31 | 01 8F 03 04 31 | 异常响应  正确 |
| 00 00位起始地址  写1969个线圈 | 01 0F 00 00 07 B1 F7 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 00 E0 42 | 01 8F 03 04 31 | 01 8F 03 04 31 | 异常响应  正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 02 00 0A 00 01 01 01  AB 96 | 01 82 01 81 60 | 01 82 01 81 60 | 异常响应  正确 |
| 异常  校验码 | 请求报文异常CRC | 01 0F 00 00 00 04 01 09  EF 91 | 无响应并显示请求报文校验码错误 | 无响应并弹出框显示请求报文校验码错误 | 错误处理  正确 |
| 报文长度异常 | 数据项多一位 | 01 0F 00 00 00 04 01 09 08 10 46 | 无响应显示请求报文长度  错误 | 无响应并弹出框显示请求报文长度错误 | 错误处理  正确 |
| 数据项少一位 | 01 0F 00 00 04 01 09 8B 68 | 无响应显示请求报文长度  错误 | 无响应并弹出框显示请求报文长度错误 | 错误处理  正确 |
| 长度过短 | 01 0F | 无响应显示请求报文长度  错误 | 无响应并弹出框显示请求报文长度错误 | 错误处理  正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 02 0F 00 00 00 01 01 09  AE 84 | 不响应并无处理操作 | 不响应并无处理操作 | 处理正确 |
| **0x10 功能码** | | | | | |
| 正确报文 | 写第一个寄存器 | 01 10 00 01 00 01 02 04 D2  25 1C | 01 10 00 01 00 01 50 09 | 01 10 00 01 00 01 50 09 | 写入正确 |
| 写最后一个寄存器 | 01 10 FF FF 00 01 02 04 D2 3F CD | 01 10 FF FF 00 01 01 ED | 01 10 FF FF 00 01 01 ED | 写入正确 |
| 00 00为起始地址  写123个寄存器 | 01 10 00 00 00 7B F6 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 E2 F1 | 01 10 00 00 00 7B 80 2A | 01 10 00 00 00 7B 80 2A | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 01 02 00 00 00 01 02 03 15 E7 BA | 01 82 01 81 60 | 01 82 01 81 60 | 异常响应  正确 |
| 非法数据地址 02 | 65535为起始地址  写2个寄存器 | 01 10 FF FF 00 02 04 01 3C 02 C5 F9 9C | 01 90 02 CD C1 | 01 90 02 CD C1 | 异常响应  正确 |
| 非法数据值 03 | 字节字段错误 | 01 10 00 00 00 02 02 01 C5 03 19 AB 54 | 01 90 03 0C 01 | 01 90 03 0C 01 | 异常响应  正确 |
| 写0个寄存器 | 01 10 00 01 00 00 00 08 AC | 01 90 03 0C 01 | 01 90 03 0C 01 | 异常响应  正确 |
| 00 00为起始地址  写124个寄存器 | 01 10 00 00 00 7C F8 10 10 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 11 7D 78 | 01 90 03 0C 01 | 01 90 03 0C 01 | 异常响应  正确 |
| 报文长度异常 | 字节数据项多一位 | 01 10 00 00 00 01 02 01 C8 02 57 BB | 不响应  显示字节数据项不匹配 | 不响应  显示字节数据项不匹配 | 处理正确 |
| 字节数据项少一位 | 01 10 00 00 00 01 02 01  01 66 | 不响应  显示字节数据项不匹配 | 不响应  显示字节数据项不匹配 | 处理正确 |
| 长度过短 | 01 10 | 不响应  显示请求报文长度不合法 | 不响应  显示请求报文长度不合法 | 处理正确 |
| 异常  校验码 | 请求报文异常CRC | 01 10 00 00 00 02 04 01 7B 03 15 43 76 | 不响应并显示请求报文校验码错误 | 不响应  弹出框提示校验码错误 | 处理正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 02 10 00 00 00 02 04 01 7B 03 15 4C 31 | 无响应 | 无响应无其他处理 | 处理正确 |

### TCP从站 测试大纲

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **0x01 功能码** | | | | | |
| **操作类型** | **操作内容** | **请求报文** | **预期应答** | **实际应答** | **结果分析** |
| 正确报文 | 读第一个线圈 | 00 01 00 00 00 06 01 01 00 00 00 01 | 00 01 00 00 00 04 01 01 01 00 | 00 01 00 00 00 04 01 01 01 00 | 读取正确 |
| 读最后一个线圈 | 00 01 00 00 00 06 01 01 FF FF 00 01 | 00 01 00 00 00 04 01 01 01 01 | 00 01 00 00 00 04 01 01 01 01 | 读取正确 |
| 00 00为起始地址  读2000个线圈数据 | 00 01 00 00 00 06 01 01 00 00 07 D0 | 00 01 00 00 00 FD 01 01 FA A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 88 00 0D 0A C6 | 00 01 00 00 00 FD 01 01 FA A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 88 00 0D 0A C6 | 读取正确 |
| 请求报文长度异常  (长度 != 12) | 报文数据项部分多一位 | 00 01 00 00 00 06 01 01 00 00 00 02 03 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文数据项部分少一位 | 00 01 00 00 00 06 00 01 00 00 02 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文头部分少一位 | 01 00 00 00 06 00 00 00 02 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文的长度字段异常 | 00 01 00 00 00 04 01 01 00 00 00 02 | 无响应  显示报文长度字段错误 | 无响应  显示报文长度字段错误 | 处理正确 |
| 非法功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 06 01 02 00 00 00 03 | 00 01 00 00 00 03 01 82 01 | 00 01 00 00 00 03 01 82 01 | 异常响应  正确 |
| 非法数据地址 02 | 超出线圈读取范围  读取2个线圈数据 | 00 01 00 00 00 06 01 01 FF FF 00 02 | 00 01 00 00 00 03 01 81 02 | 00 01 00 00 00 03 01 81 02 | 异常响应  正确 |
| 非法数据值 03 | 读取0个线圈数据 | 00 01 00 00 00 06 01 01 00 01 00 00 | 00 01 00 00 00 03 01 81 03 | 00 01 00 00 00 03 01 81 03 | 异常响应  正确 |
| 读取2001个线圈  数据 | 00 01 00 00 00 06 01 01 00 00 07 D1 | 00 01 00 00 00 03 01 81 03 | 00 01 00 00 00 03 01 81 03 | 异常响应  正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 00 01 00 00 00 06 02 01 00 00 00 03 | 无响应 | 无响应并无其他处理 | 处理正确 |
| **0x03 功能码** | | | | | |
| 正确报文 | 读取最后一个寄存器 | 00 01 00 00 00 06 01 03 FF FF 00 01 | 00 01 00 00 00 05 01 03 02 FF 02 | 00 01 00 00 00 05 01 03 02 FF 02 | 读取正确 |
| 00 00为起始地址  读取125个寄存器 | 00 01 00 00 00 06 01 03 00 00 00 7D | 00 01 00 00 00 FD 01 03 FA 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | 00 01 00 00 00 FD 01 03 FA 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | 读取正确 |
| 请求报文长度异常  (长度 != 12) | 报文数据项部分多一位 | 00 01 00 00 00 06 01 03 00 00 00 02 03 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文数据项部分少一位 | 00 01 00 00 00 06 01 03 00 00 02 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文过短 | 00 01 00 00 00 06 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文头部分少一位 | 01 00 00 00 04 00 00 00 02 | 无响应  显示报文长度不合法 | 无响应  弹出框显示长度不合法 | 处理正确 |
| 报文的长度字段异常 | 00 01 00 00 00 04 01 01 00 00 00 02 | 无响应  显示报文长度字段错误 | 无响应  显示报文长度字段错误 | 处理正确 |
| 非法功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 06 01 02 00 00 00 03 | 00 01 00 00 00 03 01 82 01 | 00 01 00 00 00 03 01 82 01 | 异常响应  正确 |
| 非法数据地址 02 | 超出读取范围  读取2个寄存器数据 | 00 01 00 00 00 06 01 03 FF FF 00 02 | 00 01 00 00 00 03 01 83 02 | 00 01 00 00 00 03 01 83 02 | 异常响应  正确 |
| 非法  数据值  03 | 读取0个寄存器数量 | 00 01 00 00 00 06 01 03 00 02 00 00 | 00 01 00 00 00 03 01 83 03 | 00 01 00 00 00 03 01 83 03 | 异常响应  正确 |
| 读取126个寄存器 | 00 01 00 00 00 06 01 03 00 00 00 7E | 00 01 00 00 00 03 01 83 03 | 00 01 00 00 00 03 01 83 03 | 异常响应  正确 |
| 从FF FF开始读取0个寄存器 | 00 01 00 00 00 06 01 03 FF FF 00 00 | 00 01 00 00 00 03 01 83 03 | 00 01 00 00 00 03 01 83 03 | 异常响应  正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 00 01 00 00 00 06 02 01 00 00 00 03 | 无响应 | 无响应并无处理 | 处理正确 |
| **0x0F 功能码** | | | | | |
| 正确报文 | 写8个线圈 | 00 01 00 00 00 08 01 0F 00 02 00 08 01 55 | 00 01 00 00 00 06 01 0F 00 00 00 08 | 00 01 00 00 00 06 01 0F 00 00 00 08 | 写入正确 |
| 写最后一个线圈 | 00 01 00 00 00 08 01 0F FF FF 00 01 01 01 | 00 01 00 00 00 06 01 0F FF FF 00 01 | 00 01 00 00 00 06 01 0F FF FF 00 01 | 写入正确 |
| 00 00 为起始地址  写1968个线圈 | 00 01 00 00 00 FD 01 0F 00 00 07 B0 F6 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 | 00 01 00 00 00 06 01 0F 00 00 07 B0 | 00 01 00 00 00 06 01 0F 00 00 07 B0 | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 08 01 02 00 0A 00 01 01 01 | 00 01 00 00 00 03 01 82 01 | 00 01 00 00 00 03 01 82 01 | 异常响应  正确 |
| 非法数据地址 02 | 超出写入范围  写2个线圈数据 | 00 01 00 00 00 08 01 0F FF FF 00 02 01 04 | 00 01 00 00 00 03 01 8F 02 | 00 01 00 00 00 03 01 8F 02 | 异常响应  正确 |
| 非法数据值 03 | 字节字段错误 | 00 01 00 00 00 08 01 0F 00 02 00 02 02 04 | 00 01 00 00 00 03 01 8F 03 | 00 01 00 00 00 03 01 8F 03 | 异常响应  正确 |
| 写0个寄存器 | 00 01 00 00 00 08 01 0F 00 02 00 00 00 00 | 00 01 00 00 00 03 01 8F 03 | 00 01 00 00 00 03 01 8F 03 | 异常响应  正确 |
| 00 00为起始地址  写1969个线圈 | 00 01 00 00 00 FE 01 0F 00 00 07 B0 F7 A0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 B1 00 00 00 00 00 00 00 00 A0 A0 A0 11 | 00 01 00 00 00 03 01 8F 03 | 00 01 00 00 00 03 01 8F 03 | 异常响应  正确 |
| 报文长度异常 | 字节数据项多一位 | 00 01 00 00 00 09 01 0F 00 00 00 01 01 01 02 | 无响应  显示字节数据错误 | 无响应  弹出框显示字节数据错误 | 处理正确 |
| 字节数据项少一位 | 00 01 00 00 00 07 01 0F 00 00 00 01 01 | 无响应  显示字节数据错误 | 无响应  弹出框显示字节数据错误 | 处理正确 |
| 长度过短 | 00 01 | 无响应  显示请求长度错误 | 无响应  弹出框显示长度错误 | 处理正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 00 01 00 00 00 08 02 0F 00 00 00 01 01 01 | 无响应 | 无响应并无其他处理 | 处理正确 |
| **0x10 功能码** | | | | | |
| 正确报文 | 写第一个寄存器 | 00 01 00 00 00 09 01 10 00 01 00 01 02 04 D2 | 00 01 00 00 00 06 01 10 00 01 00 01 | 00 01 00 00 00 06 01 10 00 01 00 01 | 写入正确 |
| 写最后一个寄存器 | 00 01 00 00 00 09 01 10 FF FF 00 01 02 04 D2 | 00 01 00 00 00 06 01 10 FF FF 00 01 | 00 01 00 00 00 06 01 10 FF FF 00 01 | 写入正确 |
| 00 00为起始地址  写123个寄存器 | 00 01 00 00 00 FD 01 10 00 00 00 7B F6 0A 0A 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 | 00 01 00 00 00 06 01 10 00 00 00 7B | 00 01 00 00 00 06 01 10 00 00 00 7B | 写入正确 |
| 非法  功能码 01 | 非01 03 0F 10  功能码 | 00 01 00 00 00 09 01 02 00 00 00 01 02 03 15 | 00 01 00 00 00 03 01 82 01 | 00 01 00 00 00 03 01 82 01 | 异常响应  正确 |
| 非法数据地址 02 | 65535为起始地址  寄存器写2个寄存器 | 00 01 00 00 00 0B 01 10 FF FF 00 02 04 01 3C 02 C5 | 00 01 00 00 00 03 01 90 02 | 00 01 00 00 00 03 01 90 02 | 异常响应  正确 |
| 非法数据值 03 | 字节字段错误 | 00 01 00 00 00 0B 01 10 00 00 00 02 02 01 C5 03 19 | 00 01 00 00 00 03 01 90 03 | 00 01 00 00 00 03 01 90 03 | 异常响应  正确 |
| 写0个寄存器 | 00 01 00 00 00 07 01 10 00 01 00 00 00 | 00 01 00 00 00 03 01 90 03 | 00 01 00 00 00 03 01 90 03 | 异常响应  正确 |
| 00 00为起始地址  写124个寄存器 | 00 01 00 00 00 FF 01 10 00 00 00 7C F8 10 10 00 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 01 01 11 01 | 00 01 00 00 00 03 01 90 03 | 00 01 00 00 00 03 01 90 03 | 异常响应  正确 |
| 报文长度异常 | 字节数据项多一位 | 00 01 00 00 00 0A 01 10 00 00 00 01 02 01 C8 02 | 无响应  显示字节数据错误 | 无响应  弹出框显示字节数据错误 | 处理正确 |
| 字节数据项少一位 | 01 10 00 00 00 01 02 01  01 66 | 无响应  显示字节数据错误 | 无响应  弹出框显示字节数据错误 | 处理正确 |
| 长度过短 | 01 10 | 无响应  显示请求长度错误 | 无响应  弹出框显示长度错误 | 处理正确 |
| 无关报文 | 请求报文从站地址非本机地址 | 00 01 00 00 00 0A 02 10 00 00 00 01 02 01 02 03 | 无响应 | 无响应并无其他处理 | 处理正确 |