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MODBUS Communication Protocol for SP-1U/2U Series High Performance Programmable DC Power Supply



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1 MODBUS Protocol

1.1 Address

This protocol is modified according to the standard MODBUS RTU file. In order to conveniently operate, there is no difference between holding register and input register, all read function use 0x30 function code.

1.2 Instructions

The RS485 default address is 0x01. When using RS485 MODBUS protocol, first please use a RS232-485 converter to connect the power supply to the PC. Press the [Menu] key on the front panel of the unit, select REMOTE CONTROL sub-menu, change RS485 MODE to MODBUS option.

1.3 Times Interval Setting

The time interval between consecutive characters cannot exceed the transmission time of 1.5 characters. The time interval between the frames equal to at least 3.5 characters.

1.4 The Format

Start	Address	Function	Data	CRC	Stop
≥ 3.5 char	1 byte	1 byte	N bytes	2 bytes	≥ 3.5 char

* The high-order byte of the field is appended first, followed by the low-order byte.

2 Function Description

2.1 Read Register

2.1.1 Request Frame

Address	Function	Start Address	Quantity of The Registers	CRC
1byte	1byte	2 bytes	2 bytes	2 bytes
Slave address	0x03	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.

2.1.2 Response Frame

Address	Function	The Number of Bytes	Register Value	CRC
1byte	1byte	1 byte	4*N bytes	21 bytes
Address	0x03	The length of register value (4*N)	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.

2.1.3 Error Frame

Address	Function	Abnormal Code	CRC
1byte	1byte	1 byte	2 bytes
Address	0x90	0x01、0x02、0x03	The high-order byte of the field is appended first, followed by the low-order byte.

2.2 Write Register

2.2.1 Request Frame

Address	Function	Start Address	Quantity of The Registers	The Number of Bytes	Register Value	CRC
1byte	1byte	2 bytes	2 bytes	1 byte	4*N bytes	2 bytes
Address	0x10	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.	The length of register value (4*N)	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.
N means the quantity of the register.						

2.2.2 Response Frame

Address	Function	Start Address	Quantity of The Registers	CRC
1byte	1byte	2 bytes	2 bytes	2 bytes
Address	0x10	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.	The high-order byte of the field is appended first, followed by the low-order byte.

2.2.3 Error Frame

Address	Function	Abnormal Code	CRC
1byte	1byte	1 byte	2 bytes
Address	0x90	0x01、0x020、0x03、0x04	The high-order byte of the field is appended first, followed by the low-order byte.

2.2.4 Abnormal Code

Code	Description
0x01	Invalid function code
0x02	Register address or data length invalid
0x03	Register value invalid

3 Register Description

Register Address	Name(default value)	Date Type	Remark	Unit	Read Write
0	Voltage Measurement H (0x0000)	INT16U		0.0001V	R
	Voltage Measurement L (0x0000)	INT16U			
1	Current Measurement H (0x0000)	INT16U		0.0001A	R
	Current Measurement L (0x0000)	INT16U			
2	DVM Measurement H (0x0000)	INT16U		0.0001V	R
	DVM Measurement L (0x0000)	INT16U			
3	Output ON/OFF H (0x0000)	INT16U	0X00000000/OFF 0X00000001/ON		R/W
	Output ON/OFF L (0x0000)	INT16U			
4	Voltage Setup H (0x0000)	INT16U		0.0001V	R/W
	Voltage Setup L (0x0000)	INT16U			
5	Current Setup H (0x0000)	INT16U		0.0001A	R/W
	Current Setup L (0x0000)	INT16U			
6	Voltage Maximum Limit Setup H (0x000B)	INT16U		0.0001V	R/W
	Voltage Maximum Limit Setup L (0X71B0)	INT16U			
7	Voltage Minimum Limit Setup H (0x0000)	INT16U		0.0001V	R/W
	Voltage Minimum Limit Setup L (0x0000)	INT16U			
8	Current Maximum Limit Setup H (0x0003)	INT16U		0.0001A	R/W
	Current Maximum Limit Setup L (0x0D40)	INT16U			
9	Current Minimum Limit Setup H (0x0000)	INT16U		0.0001A	R/W
	Current Minimum Limit Setup L (0x0000)	INT16U			
10	OVP Setup H(0x000B)	INT16U		0.0001V	R/W
	OVP Setup L(0X71B0)	INT16U			
11	OCP Setup H(0x0003)	INT16U		0.0001A	R/W
	OCP Setup L(0x0D40)	INT16U			
12	OPP Setup H(0x0002)	INT16U		0.01W	R/W
	OPP Setup L(0x49F0)	INT16U			
13	Voltage Setup in User Mode H (0x0000)	INT16U		0.0001V	R/W
	Voltage Setup in User Mode L (0x0000)	INT16U			
14	Current Setup in User Mode H (0x0000)	INT16U		0.0001A	R/W
	Current Setup in User Mode L (0x0000)	INT16U			

Register Address	Name(default value)	Date Type	Remark	Unit	Read Write
18	M/S Connection Mode H (0x0000)	INT16U	0 - Single 2 - Series 3 - Parallel		R/W
	M/S Connection Mode L (0x0000)	INT16U			
19	Master/Slave Configuration H (0x0000)	INT16U	0 - MASTER 1~9 - SLAVE 1~9		R/W
	Master/Slave Configuration L (0x0000)	INT16U			
20	RS232 Baud Rate H (0x0000)	INT16U			R/W
	RS232 Baud Rate L (0x2580)	INT16U			
21	RS232 Parity H(0x0000)	INT16U	0 - NONE 1 - ODD 2 - EVEN		R/W
	RS232 Parity L(0x0000)	INT16U			
22	RS232 Stop Bit H(0x0000)	INT16U	0 - 1 1 - 2		R/W
	RS232 Stop Bit L(0x0000)	INT16U			
23	RS485 Address H(0x0000)	INT16U	1~255		R/W
	RS485 Address L(0x0001)	INT16U			
24	RS485 Baud Rate H(0x0000)	INT16U	9600		R/W
	RS485 Baud Rate L(0x2580)	INT16U			
25	RS485 Parity H(0x0000)	INT16U	0 - NONE 1 - ODD 2 - EVEN	A	R/W
	RS485 Parity L(0x0000)	INT16U			
26	RS485 Stop Bit H(0x0000)	INT16U	0-1 1-2	10	R/W
	RS485 Stop Bit L(0x000A)	INT16U			
30	POWER ON STATE H(0X0000)	INT16U	0 - OFF 1 - USER 2 - LAST		R/W
	POWER ON STATE L(0X0000)	INT16U			
31	Buzzer State H (0X0000)	INT16U	0 - OFF 1 - ON		R/W
	Buzzer State L(0X0000)	INT16U			
32	ON/OFF Control L (0X0000)	INT16U	0x00000400 (CurrentSharing ON) 0x00000001(OVP ON) 0x00000002(OCP ON) 0x00000004(OPP ON) 0x00000008(CCCV ON) 0x00000010(CVCC ON)		R/W
	ON/OFF Control L (0X0000)	INT16U			

Register Address	Name(default value)	Date Type	Remark	Unit	Read Write
33	Restore Factory Default Settings H (0X0000)	INT16U	0X00000001 will enable restore factory default settings		
	Restore Factory Default Settings L (0X0000)	INT16U			
34	Switch to SCPI Mode H (0X0000)	INT16U	0X00000001 will enable SCPI mode		R/W
	Switch to SCPI Mode L (0X0000)	INT16U			
35	Slave 1 Voltage Measurement H	INT16U		0.0001V	R
	Slave 1 Voltage Measurement L	INT16U			
36	Slave 1 Current Measurement H	INT16U		0.0001A	R
	Slave 1 Current Measurement L	INT16U			
37	Slave 2 Voltage Measurement H	INT16U		0.0001V	R
	Slave 2 Voltage Measurement L	INT16U			
38	Slave 2 Current Measurement H	INT16U		0.0001A	R
	Slave 2 Current Measurement L	INT16U			
39	Slave 3 Voltage Measurement H	INT16U		0.0001V	R
	Slave 3 Voltage Measurement L	INT16U			
40	Slave 3 Current Measurement H	INT16U		0.0001A	R
	Slave 3 Current Measurement L	INT16U			
41	Total Quantity of Power supplies in M/S System H	INT16U			R
	Total Quantity of Power supplies in M/S System L	INT16U			
42	Fault Information H	INT16U	Write 0 to clear the fault information		R/W
	Fault Information L	INT16U			
43	Power Measurement H	INT16U			R
	Power Measurement L	INT16U			
44	Remote Control Mode / Local Control Mode H	INT16U	0 - Local Control Mode 1 - Remote Control Mode		R/W
	Remote Control Mode / Local Control Mode L	INT16U			
45	External Control Mode / Remote Control Mode H	INT16U	0 - External Control Mode 1 - Remote Control Mode		W
	External Control Mode / Remote Control Mode L	INT16U			
46	Power Supply Model H	INT16U			R
	Power Supply Model L	INT16U			
47	Sampling Measurement H	INT16U	0 - FAST 1 - MEDIUM 2 - LOW		R/W
	Sampling Measurement L	INT16U			

Register Address	Name(default value)	Date Type	Remark	Unit	Read Write
48	M/S Connection Mode H	INT16U	0 - Single 1 - Parallel 2 - Series		R/W
	M/S Connection Mode L	INT16U			
49	Slave No. H	INT16U	1~9		R
	Slave No. L	INT16U			
50	Master/Slave Configuration H	INT16U	0 - Master 1~9 - Slave 1~9		R/W
	Master/Slave Configuration L	INT16U			
51	List File Format H	INT16U	1~2 - 2*150 steps 3~4 - 3*25 steps 5-14 - 5*30 steps		R
	List File Format L	INT16U			
52	List File Total Steps H	INT16U			R
	List Total Steps L	INT16U			
53	List Running Mode H	INT16U	0 - CONT 1 - STEP 2 - LOOP		R
	List Running Mode L	INT16U			
54	List Specified Step H	INT16U			R
	List Specified Step L	INT16U			
55	List Step Voltage H	INT16U			R
	List Step Voltage L	INT16U			
56	List Step Current H	INT16U			R
	List Step Current L	INT16U			
57	List Step Start Voltage H	INT16U			R
	List Step Start Voltage L	INT16U			
58	List Step End Voltage H	INT16U			R
	List Step End Voltage L	INT16U			
59	List Voltage Slew Rate H	INT16U			R
	List Voltage Slew Rate L	INT16U			
60	List Step Tcon H	INT16U			R
	List Step Tcon L	INT16U			
61	Save List H	INT16U			R
	Save List L	INT16U			
62	Load List H	INT16U			R
	Load List L	INT16U			

Register Address	Name(default value)	Date Type	Remark	Unit	Read Write
63	Run List H	INT16U			R
	Run List L	INT16U			
64	Stop List H	INT16U			R
	Stop List L	INT16U			
65	Select SEQUENCE File H	INT16U	Start from 0		R
	Select SEQUENCE File L	INT16U			
66	SEQUENCE File Total Steps H	INT16U			R
	SEQUENCE File Total Steps L	INT16U			
67	SEQUENCE File Running Mode H	INT16U	0 - CYCLE 1 - STEP		R
	SEQUENCE File Running Mode L	INT16U			
68	SEQUENCE File Repeat Times H	INT16U			R
	SEQUENCE File Repeat Times L	INT16U			
69	SEQUENCE File Specified Step H	INT16U			R
	SEQUENCE File Specified Step L	INT16U			
70	Select List File H	INT16U	0~9 - 3_01~3-10		R
	Select List File L	INT16U			
71	Specified List File Repeat Times H	INT16U			R
	Specified List File Repeat Times L	INT16U			
72	Save SEQUENCE File H	INT16U			R
	Save SEQUENCE File L	INT16U			
73	Load SEQUENCE File H	INT16U			R
	Load SEQUENCE File L	INT16U			
74	Run SEQUENCE File H	INT16U			R
	Run SEQUENCE File L	INT16U			
75	Trigger SEQUENCE File H	INT16U	Trigger SEQUENCE file when running mode set as STEP		R
	Trigger SEQUENCE File L	INT16U			
76	Exit SEQUENCE File H	INT16U			R
	Exit SEQUENCE File L	INT16U			

4 Examples

1. Query voltage measurement.

Send command: 0103 0000 0001 AAAA

Address	Function Code	Start Address	The Quantity of Register	CRC
01	03	0000	0001	AAAA

Return command: 0103 0400 0493 E1 174A

Address	Function Code	The Number of Bytes	Register Value	CRC
01	03	0C	00 0493 E1	17 4A

2. Turn on the output of the unit.

Send command: 0110 0003 0001 0400 0000 01 AAAA

Address	Function Code	Start Address	The Quantity of Register	The Number of Bytes	Register Value	CRC
01	03	0003	0001	04	00 0000 01	AAAA

Return command: 0110 0003 0001 F1C9

Address	Function Code	Start Address	Register Value	CRC
01	03	0003	0001	F1C9

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1. MODBUS协议简介

1.1 地址说明

该协议根据MODBUS RTU标准修改制定。为方便操作，协议中没有区别保持寄存器和输入寄存器，读功能统一用0X03功能码。

1.2 使用说明

电源的RS485地址初始值为0x01。通过RS232-485转换器连接电源到电脑，在电源功能菜单下REMOTE CONTROL中将RS485 MODE切换为MODBUS选项，结合MODBUS CRC16程序来进行读写指令。

1.3 字符超时与帧超时

两连续字符的接收间隔不能超过1.5个字符传输时间，否则认为帧错误。帧与帧的发送间隔至少为3.5个字符传输时间,否则后续帧不与接收。

1.4 协议格式

开始段	地址段	功能段	数据段	校验段(CRC)	终止段
3.5个字符 时间	1字节	1字节	N字节	2字节, 高字节在前, 低字节在后	3.5个字符 时间

2 功能说明

2.1 读寄存器

2.1.1 请求帧

地址码	功能码	寄存器起始地址	寄存器数量	CRC校验
1字节	1字节	2字节	2字节	2字节
从机地址	0x03	高字节在前, 低字节在后	高字节在前, 低字节在后	高字节在前, 低字节在后

2.1.2 应答帧

地址码	功能码	字节数	寄存器值	CRC校验
1字节	1字节	1字节	4*N字节	2字节
地址	0x03	寄存器值的长度 (4*N)	寄存器值, 高字节 在前, 低字节在后	高字节在前, 低字节在后
N表示寄存器数量				

2.1.3 错误帧

地址码	功能码	异常码	CRC校验
1字节	1字节	1字节	2字节
地址	0x90	0x01、0x02、0x03	高字节在前, 低字节在后

2.2 写寄存器

2.2.1 请求帧

地址码	功能码	寄存器 起始地址	寄存器数量	字节数	寄存器值	CRC校验
1字节	1字节	2字节	2字节	1字节	4*N字节	2字节
地址	0x10	高字节在前, 低字节在后	高字节在前, 低字节在后	寄存器值的 长度(4*N)	寄存器值, 高字节在前 低字节在后	高字节在前, 低字节在后
N表示寄存器数量						

2.2.2 应答帧

地址码	功能码	寄存器起始地址	寄存器数量	CRC校验
1字节	1字节	2字节	2字节	2字节
地址	0x10	高字节在前, 低字 节在后	高字节在前, 低字 节在后	高字节在前, 低字 节在后

2.2.3 错误帧

地址码	功能码	异常码	CRC校验
1字节	1字节	1字节	2字节
地址	0x90	0x01、0x020、0x03、0x04	高字节在前, 低字节在后

2.2.4 异常码说明

代码	名称	含义
0x01	非法功能	无效的功能码
0x02	非法数据地址	寄存器地址无效或数据长度无效
0x03	非法数据值	寄存器值无效

3 寄存器说明

序号 (寄存器)	名称 (default 默认值)	DATA 类型	备注	单位	读/写
0	回读电压H (0x0000)	INT16U		0.0001V	只读
	回读电压L (0x0000)	INT16U			
1	回读电流H (0x0000)	INT16U		0.0001A	只读
	回读电流L (0x0000)	INT16U			
2	回读DVM H (0x0000)	INT16U		0.0001V	只读
	回读DVM L (0x0000)	INT16U			
3	开、关机H(0x0000)	INT16U	0X00000000关机 0X00000001开机		读/写
	开、关机L(0x0000)	INT16U			
4	设定电压H0 (0x0000)	INT16U		0.0001V	读/写
	设定电压L0 (0x0000)	INT16U			
5	设定电流H (0x0000)	INT16U		0.0001A	读/写
	设定电流L (0x0000)	INT16U			
6	设置设定电压上限H (0x000B)	INT16U		0.0001V	读/写
	设置设定电压上限L (0X71B0)	INT16U			
7	设置设定电压下限H (0x0000)	INT16U		0.0001V	读/写
	设置设定电压下限L (0x0000)	INT16U			
8	设置设定电流上限H (0x0003)	INT16U		0.0001A	读/写
	设置设定电流上限L (0x0D40)	INT16U			
9	设置设定电流下限H (0x0000)	INT16U		0.0001A	读/写
	设置设定电流下限L (0x0000)	INT16U			
10	保护电压设定H(0x000B)	INT16U		0.0001V	读/写
	保护电压设定L(0X71B0)	INT16U			
11	保护电流设定H(0x0003)	INT16U		0.0001A	读/写
	保护电流设定L(0x0D40)	INT16U			
12	保护功率设定H(0x0002)	INT16U		0.01W	读/写
	保护功率设定L(0x49F0)	INT16U			
13	USER下的电压设定H(0x0000)	INT16U		0.0001V	读/写
	USER下的电压设定L(0x0000)	INT16U			
14	USER下的电流设定H(0x0000)	INT16U		0.0001A	读/写
	USER下的电流设定L(0x0000)	INT16U			

序号 (寄存器)	名称 (default 默认值)	DATA 类型	备注	单位	读/写
18	主从连接模式H(0x0000)	INT16U	0-单机 1-串行 2-并行		读/写
	主从连接模式L(0x0000)	INT16U			
19	Master/Slave 配置H(0x0000)	INT16U	0 - MASTER 1~9 - SLAVE 1~9		读/写
	Master/Slave 配置L(0x0000)	INT16U			
20	RS232波特率H(0x0000)	INT16U			读/写
	RS232波特率L(0x2580)	INT16U			
21	RS232校验位H(0x0000)	INT16U	0 - NONE 1 - ODD 2 - EVEN		读/写
	RS232校验位L(0x0000)	INT16U			
22	RS232停止位H(0x0000)	INT16U	0 - 1 1 - 2		读/写
	RS232停止位L(0x0000)	INT16U			
23	RS485地址H(0x0000)	INT16U	1-255		读/写
	RS485地址L(0x0001)	INT16U			
24	RS485波特率H(0x0000)	INT16U	9600		读/写
	RS485波特率L(0x2580)	INT16U			
25	RS485校验位H(0x0000)	INT16U	0 - NONE 1 - ODD 2 - EVEN	A	读/写
	RS485校验位L(0x0000)	INT16U			
26	RS485停止位H(0x0000)	INT16U	0 - 1 1 - 2	10	读/写
	RS485停止位L(0x000A)	INT16U			
30	POWER ON STATE H(0X0000)	INT16U	0 - OFF 1 - USER 2 - LAST		读/写
	POWER ON STATE L(0X0000)	INT16U			
31	蜂鸣器开启、关闭H(0X0000)	INT16U	0 - 关闭 1 - 打开		读/写
	蜂鸣器开启、关闭L(0X0000)	INT16U			
32	开关量H(0X0000)	INT16U	0x00000400(均流开) 0x00000001(OVP开) 0x00000002(OCP开) 0x00000004(OPP开) 0x00000008(CCCV开) 0x00000010(CVCC开)		读/写
	开关量L(0X0000)	INT16U			

序号 (寄存器)	名称 (default 默认值)	DATA 类型	备注	单位	读/写
33	恢复出厂H(0x0000)	INT16U	0X00000001生效		
	恢复出厂L(0x0000)	INT16U			
34	中断接收切换至SCPI指令H(0x0000)	INT16U	0X00000001生效, 预设状态为SCPI 接收		读/写
	中断接收切换至SCPI指令L(0x0000)	INT16U			
35	从机1电压回读值H	INT16U		0.0001V	只读
	从机1电压回读值L	INT16U			
36	从机1电流回读值H	INT16U		0.0001A	只读
	从机1电流回读值L	INT16U			
37	从机2电压回读值H	INT16U		0.0001V	只读
	从机2电压回读值L	INT16U			
38	从机2电流回读值H	INT16U		0.0001A	只读
	从机2电流回读值L	INT16U			
39	从机3电压回读值H	INT16U		0.0001V	只读
	从机3电压回读值L	INT16U			
40	从机3电流回读值H	INT16U		0.0001A	只读
	从机3电流回读值L	INT16U			
41	电源在线台数H	INT16U			只读
	电源在线台数L	INT16U			
42	故障信息H	INT16U	写0清除故障		读/写
	故障信息L	INT16U			
43	输出功率H	INT16U			只读
	输出功率L	INT16U			
44	远程/本地模式H	INT16U	0 - 本地模式		读写
	远程/本地模式L	INT16U	1 - 远程模式		
45	外部控制/远程控制H	INT16U	0 - 外部模式		只写
	外部控制/远程控制L	INT16U	1 - 远程控制		
46	电源型号查询H	INT16U			只读
	电源型号查询L	INT16U			
47	测量平均值H	INT16U	0 - FAST		读写
	测量平均值L	INT16U	1 - MEDIUM 2 - LOW		

序号 (寄存器)	名称 (default 默认值)	DATA 类型	备注	单位	读/写
48	并机模式H	INT16U	0 - 单机 1 - 并联 2 - 串联		读/写
	并机模式L	INT16U			
49	读并机序号H	INT16U	1/2/3/...		只读
	读并机序号L	INT16U			
50	电源主从状态H	INT16U	0 - 主机 1~9 - 从机1~9		读/写
	电源主从状态L	INT16U			
51	List文件格式H	INT16U	1~2 - 2*150 steps 3~4 - 3*25 steps 5-14 - 5*30 steps		只写
	list文件格式L	INT16U			
52	List总步数H	INT16U	取决于List文件 格式		只写
	List总步数L	INT16U			
53	List运行模式H	INT16U	0 - CONT 1 - STEP 2 - LOOP		只写
	List运行模式L	INT16U			
54	List指定步数H	INT16U			只写
	List指定步数L	INT16U			
55	List单步电压H	INT16U			只写
	List单步电压L	INT16U			
56	List单步电流H	INT16U			只写
	List单步电流L	INT16U			
57	List单步开始电压H	INT16U			只写
	List单步开始电压L	INT16U			
58	List单步结束电压H	INT16U			只写
	List单步结束电压L	INT16U			
59	List电压斜率H	INT16U			只写
	List电压斜率L	INT16U			
60	List单步延时时间H	INT16U			只写
	List单步延时时间L	INT16U			
61	List文件保存H	INT16U			只写
	List文件保存L	INT16U			
62	List文件下载H	INT16U			只写
	List文件下载L	INT16U			

序号 (寄存器)	名称 (default 默认值)	DATA 类型	备注	单位	读/写
63	List文件运行H	INT16U			只写
	List文件运行L	INT16U			
64	List停止H	INT16U			只写
	List停止L	INT16U			
65	选择SEQUENCE文件H	INT16U	0表示第一个		只写
	选择SEQUENCE文件L	INT16U			
66	SEQUENCE总步数H	INT16U			只写
	SEQUENCE总步数L	INT16U			
67	SEQUENCE运行模式H	INT16U	0 - CYCLE 1 - STEP		只写
	SEQUENCE运行模式L	INT16U			
68	SEQUENCE运行次数H	INT16U			只写
	SEQUENCE运行次数L	INT16U			
69	SEQUENCE指定步数H	INT16U			只写
	SEQUENCE指定步数L	INT16U			
70	SEQUENCE选择LIST文件H	INT16U	0~9 - 3_01~3-10		只写
	SEQUENCE选择LIST文件L	INT16U			
71	SEQUENCE 中LIST文件运行次数H	INT16U			只写
	SEQUENCE 中LIST文件运行次数L	INT16U			
72	保存SEQUENCE所有设定H	INT16U			只写
	保存SEQUENCE所有设定L	INT16U			
73	下载SEQUENCE文件H	INT16U			只写
	下载SEQUENCE文件L	INT16U			
74	运行SEQUENCE文件H	INT16U			只写
	运行SEQUENCE文件L	INT16U			
75	当运行模式为STEP时, 触发SEQUENCE文件H	INT16U			只写
	当运行模式为STEP时, 触发SEQUENCE文件L	INT16U INT16U			
76	退出SEQUENCE文件H	INT16U			只写
	退出SEQUENCE文件L	INT16U			

4 命令示例

1. 回读当前电压值

下发指令:0103 0000 0001 AAAA

解析:

地址码	功能码	寄存器起始地址	寄存器数量	CRC校验
01	03	0000	0001	AAAA

2. 设定电源输出为ON

下发指令:0110 0003 0001 0400 0000 01 AAAA

解析:

地址码	功能码	寄存器起始地址	寄存器数量	字节数	寄存器值	CRC校验
01	03	0003	0001	04	00 0000 01	AAAA

返回指令:0110 0003 0001 F1C9

解析:

地址码	功能码	寄存器起始地址	寄存器数量	CRC校验
01	03	0003	0001	F1C9



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