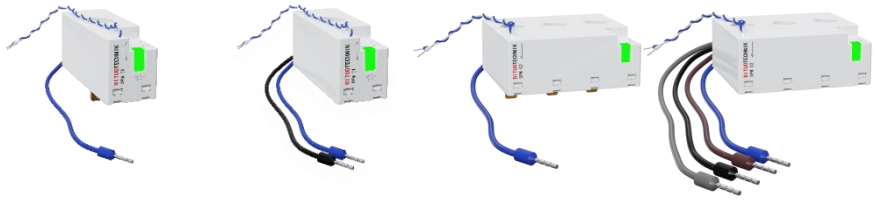
SPM01/02

Smart Energy Sensors (RS485 version)

Modbus register address list



This document applies to the following products.

#	Ordering number	Description
1	SPM01-D1M1	MCB mounted (Downstream installation), 18mm, 1P+N, Modbus RTU
2	SPM01-U1M1	MCB mounted (Upstream installation), 18mm, 1P+N, Modbus RTU
3	SPM01-D2M1	Hanging on cable (Downstream installation), 18mm, 1P+N, Modbus RTU
4	SPM01-U2M1	Hanging on cable (Upstream installation), 18mm, 1P+N, Modbus RTU
5	SPM02-D1M1	MCB mounted (Downstream installation), 54mm, 1P+N, Modbus RTU
6	SPM02-U1M1	MCB mounted (Upstream installation), 54mm, 1P+N, Modbus RTU
7	SPM02-D2M1	Hanging on cable (Downstream installation), 54mm, 1P+N, Modbus RTU
8	SPM02-U2M1	Hanging on cable (Upstream installation), 54mm, 1P+N, Modbus RTU

Note:

- Device Locating: To identify the target sensor in a distribution board with several sensors installed, please refer to the "Device Locating" function in the Modbus Command chapter.
- Modbus Broadcasting: When using the Modbus broadcasting feature described in the Modbus Broadcasting chapter, press the reset button of the sensor to accept the assigned Modbus address.

Product Identification

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
100	64	Meter type	0x03 0x04	R	20	UTF8			"SPM01" , "SPM02" or others		√	√
110	6E	Manufacturer	0x03 0x04	R	20	UTF8			"BITUO TECHNIK"		√	√
120	78	Product ID	0x03 0x04	R	10	UTF8			"SPM01X001" or "SPM02X001"		√	√
125	7D	Serial number	0x03 0x04	R	10	UTF8			“SXYYWWZZZZZ”		√	√
130	82	HW version	0x03 0x04	R	10	UTF8			"xxx.xx.xx"		√	√
135	87	FW version	0x03 0x04	R	10	UTF8			"xxx.xx.xx"		√	√

Basic Metering Data - part 1

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
1000	3E8	Voltage A-N	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		V	√	√
1002	3EA	Voltage B-N	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		V		√
1004	3EC	Voltage C-N	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		V		√
1006	3EE	Current A	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		A	√	√
1008	3F0	Current B	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		A		√
1010	3F2	Current C	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		A		√
1012	3F4	Active power A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kW	√	√
1014	3F6	Active power B	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kW		√
1016	3F8	Active power C	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kW		√
1018	3FA	Reactive power A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVAR		√
1020	3FC	Reactive power B	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVAR		√
1022	3FE	Reactive power C	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVAR		√
1024	400	Apparent power A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVA	√	√
1026	402	Apparent power B	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVA		√
1028	404	Apparent power C	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVA		√

Basic Metering Data - part 2

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
1030	406	Power factor A	0x03 0x04	R	4	FLOAT32	float AB CD	-1~1			√	√
1032	408	Power factor B	0x03 0x04	R	4	FLOAT32	float AB CD	-1~1				√
1034	40A	Power factor C	0x03 0x04	R	4	FLOAT32	float AB CD	-1~1				√
1036	40C	Average voltage L-N	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		V		√
1038	40E	Average line current	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		A		√
1040	410	Unbalance line currents	0x03 0x04	R	4	FLOAT32	float AB CD	-300~300		%		√
1042	412	Total line currents	0x03 0x04	R	4	FLOAT32	float AB CD	0-3000		A		√
1044	414	Total active power	0x03 0x04	R	4	FLOAT32	float AB CD	-3000-3000		kW		√
1046	416	Total reactive power	0x03 0x04	R	4	FLOAT32	float AB CD	-3000-3000		kVAR		√
1048	418	Total apparent power	0x03 0x04	R	4	FLOAT32	float AB CD	-3000-3000		kVA		√

Basic Metering Data - part 3

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
1050	41A	Total power factor	0x03 0x04	R	4	FLOAT32	float AB CD	-1~1				√
1052	41C	Frequency	0x03 0x04	R	4	FLOAT32	float AB CD	0~1000		Hz	√	√
1054	41E	Total Import active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	√
1056	420	Total Export active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	√
1058	422	Total Import and Expor active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	√

RS485 Parameter Setting

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
6000	1770	Modbus Address	0x03 0x04 0x06 0x10	R/W	2	UINT16		1 - 247 assigned add: 1- 246	247		√	√
6001	1771	Baud Rate	0x03 0x04 0x06 0x10	R/W	2	UINT16	0 = 9600 bps; 1 = 2400 bps; 2 = 4800 bps； 3 = 9600 bps; 4 = 19200 bps; 5 = 38400 bps;	0-5	0 = 9600 bps；		√	√
6002	1772	Parity / Stop	0x03 0x04 0x06 0x10	R/W	2	UINT16	0 = N81 1 = E81 2 = O81 3 = N82	0-3	0 = N81（no parity，8 bit data，1 bit stop）		√	√

Modbus Command

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
10000	2710	Device locating with LED blinking[1)]	0x06	W	2	UINT16		0x5055 (20565)			√	√
10001	2711	Reset Energy	0x06	W	2	UINT16		0x51AA (20906)			√	√

1) It can be used to help identify the target sensor in a distribution board with several sensors installed.

SPM01_SingleFrameDataSet - part 1

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
20000	4E20	Voltage A-N	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		V	√	
20002	4E22	Current A	0x03 0x04	R	4	FLOAT32	float AB CD	0-1000		A	√	
20004	4E24	Active power A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kW	√	
20006	4E26	Power factor A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000			√	
20008	4E28	Frequency	0x03 0x04	R	4	FLOAT32	float AB CD	0~1000		Hz	√	
20010	4E2A	Import active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	
20012	4E2C	Export active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	
20014	4E2E	Total active energy (Import + Export)	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	

SPM01_SingleFrameDataSet - part 2

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
20016	4E30	Non resettable Import active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	
20018	4E32	Non resettable Export active energy	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	
20020	4E34	Non resettable Total active energy (Import + Export)	0x03 0x04	R	4	FLOAT32	float AB CD	-1999999999~1999999999		kWh	√	
20022	4E36	Apparent power A	0x03 0x04	R	4	FLOAT32	float AB CD	-1000-1000		kVA	√	

Broadcast command

Register		Description	MB code	RW	Size (UINT8)	Data Format	Data Format Note	Range	Default	Unit	Supported Devices	
DEC	HEX										SPM01	SPM02
30000	7530	Assign Modbus address with button press trigger[1)]	0x10	W	4	UINT16	0x55AA (21930) + Assigned Modbus Address	assigned address: 1- 246			√	√

1) Modbus Address Assignment: Press the reset button of the sensor to accept the assigned Modbus address during Modbus broadcasting.

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