

**EV METER** 

# MODBUS MAP 1-PHASE

9AKK107992A5721

Default Modbus settings:

Baud rate = 9600 (settable)

Device Address = 1 (settable)

Parity = Even (settable)

## 1 Total energy

Name	Binary		Data Format					
	Address	Address	(8 bytes, 4 de	cimal places, th	the unit: kWh)			
Active import	0101 0000	0x5000	0x00000000 00112233	0x00000000 00112233	112.2867kWh	unsigned		
energy	0000 0000		00112233	00112233				
				=1122867				

## 2 Instantaneous values

#### 2.1 Voltage

Details	Binary	Hexadecimal	Data Format						
	Address	Address	(4 bytes, 1 dec	imal place, the u	nit: V)				
L1-N	0101 1011	0x5B00	0x000008F3	0x000008F3	229.1V	unsigned			
	0000 0000			= 2291					

#### 2.2 Current

Details	Binary	Hexadecimal	Data Format					
	Address	Address	(4 bytes, 2 d	decimal places, t	he unit: A)			
L1	0101 1011	0x5B0C	0x000002	0x00000209	5.21A	unsigned		
	0000 1100		09	=521				

### 2.3 Active power

Details	Binary	Hexadecimal	Data Format					
	Address	Address	(4 bytes, 2 decimal places, the unit: W)					
Total ac-	0101 1011	0x5B14	0x0001C14D	0x0001C14D	1150.21W	signed		
tive power	0001 0100			=115021				

### 2.4 Frequency

Details	Binary	Hexadecimal	Data Format						
	Address	Address	(2 bytes, 2	decimal places,	the unit: Hz)				
Frequency	0101 1011	0x5B2C	0x1388	0x1388	50.00Hz	unsigned			
	0010 1100			=5000					

#### 2.5 Power factor

Details	Binary	Hexadecimal Ad-	Data Forn	nat		
	Address	dress	(2 bytes, 3	3 decimal place	s, range: 0 ~ +1.0	00)
Total	0101 1011	0x5B3A	0x03E6	0x03E6	0.998	unsigned
power factor	0011 1010			=998		

## 3 Production data and identification

Name	Binary Address	Hexadecimal Address	Data size	Data Format		
Serial num- ber	0000 0100	0x0402	6 Bytes	0x001122334455	"001122334455 "	
	0000 0010					
Meter firm-	1000 1001	0x8908	16 Bytes	0x4142434445464 7484950515253545	"ABCDEFGHIJK LMNOP"	ASCII string (up to 16 char-
ware ver- sion	0000 1000			556	LMNOP	acters)
Type desig-	1000 1001	0x8960	12 Bytes	0x4142434445464	"ABCDEFGHEF	ASCII string
nation	0110 0000			74849505152	GH"	(up to 12char- acters)
Checksum	1000 1001	0x8912	2 Bytes	0x6185	"6185"	
	0001 0010					

### 4 Miscellaneous

Name	Binary Address	Hexadecimal Ad- dress	Data size	Description	Data type
Error flags	1000 1010	0x8A13	8 Bytes	64 flags	Bit string
	0001 0011				Bit0: EE_error
					Other: reserved

## 5 Display

Name	Binary Address	Hexadecimal Address	Data size	Data Format(un- signed)	Area	Attribute
Auto Mode Dura- tion (sec)	0001 0000	0x1000	2 Bytes	0x000A=10	4~20, UNIT (s)	RW
	0000 0000				default: 5s	
Auto Mode Write register (32 Item)	0001 0001 0000 0000	0x1100	64 Bytes	5B00 FFFF FFFF FFFF FFFF (32 Item * 2 = 64 bytes)		RW
Auto Display Item	0001 0000 0001 0000	0x1010	2 Bytes	0x000A=10		RW

## **6 Basic Information**

Details	Binary Address	Hexadeci- mal Ad- dress	Data Format	·			Attrib- ute	Data size
Rated Voltage	0000 0100	0x040C	0x000008F C	0x000008F C=2300	230.0V	un- signed	R	4 Bytes
	0000 1100							
Rated Current	0000 0100	0x040E	0x000001F 4	0x000001F 4	5.00A	un- signed	R	4 Bytes
	0000 1110			=500				
Maximum Cur- rent	0000 0100	0x0411	0x0000196 4	0x0000196 4	65.00A	un- signed	R	4 Bytes
	0001 0001			=6500				
Rated Fre- quency	0000 0100	0x0410	0x1388	0x1388 =5000	50.00Hz	un- signed	R	2 Bytes
	0001 0000							

Communica- tion Address	1000 1001	0x8900	0x0074	0x0074	74	RW	2 Bytes
	0000						
	0000						
Baud rate	0000	0x040B	0x0005	5 - 9600bps	Default:	RW	2 Bytes
	0100		0x0006	6 - 19200bps	5 - 9600 bps		
	0000		0,0007	7 -			
	1011		0x0007	38400bps			
Active pulse	0000	0x0413	0x03E8	0x03E8	1000 imp/kWh	R	2 Bytes
constant	0100			=1000			
	0001						
	0011						
Communica-	0000	0x0414	0x0001	1 - 8N1	Default:	RW	2 Bytes
tion Parity	0100		0x0002	2 - 8E1	2 - 8E1		
	0001		0x0003	3 - 801			
	0100						

## 7 Descriptions of combination reading

Because EV1 does not define consecutive register addresses, combination reading is not commonly used for EV1

If register addresses are read in combination, the data of undefined address will be return 0.

#### 7.1 Read instantaneous data.

starting address: 5B00, quantity of registers: 59

Data analysis:

Send → \$01 03 5B 00 00 3B 17 3D

// 0x5B00: The register address of voltage. Starting address should be defined, use undefined address as starting address,

meter will return error code 02, mean address error

0x3B = 59[59 registers]

Receive ← **◆**01 03 76

00 00 08 FC //0x5B00: Voltage

00 00 01 F4 //0x5B0C: Current

 $00\ 00\ 00\ 00\ 00\ 00\ 00\ 00\ 00\ 00$  //undefined address, data will be zero.

00 01 C1 38 //0x5B14: Active power

13 87 //0x5B2C: Frequency

03 E8 //0x5B3A: Power factor

73 D7 //CRC

#### 7.2 Read basic information

starting address: 040B, quantity of registers: 59

Data analysis:

Send → \$01 03 04 0B 00 0A B5 3F

Receive ← **◆**01 03 14

00 05 //0x040B: Baud rate

00 00 08 FC //0x040C: Rated Voltage

00 00 01 F4 //0x040E: Rated Current

13 88 //0x0410: Rated Frequency

00 00 19 64 //0x0411: Maximum Current

03 E8 //0x0413: Active pulse constant

00 02 //0x0414: Communication Parity

FA 30 //CRC

#### 7.3 The complete data item should be read out

For defined data items, the complete number of registers should be read out, otherwise it will return error code 03.

For example:

starting address:5B00, quantity of registers: 13

Data analysis:

Send  $\rightarrow \diamondsuit 01 03 5B 00 00 0D 97 2B //0x0D = 13[13 registers]$ 

Receive ← ◆01 83 03 01 31 //error code:03, mean number of registers error

The register address of current are 5B0C and 5B0D, but this command only read 5B0C, complete value of current is not obtained, so it returns error.