DIN-rail Mounted Energy Meter

Modbus list Manual

(Ver 2.2 Date Issued: 08/2021)

Applied to：

DDS1946-1P

DDSF1946-1P

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Content

1. Modbus-RTU communication

Modbus-RTU communication protocol message format

1.1 Read data register value（function code 0x03/0x04）

	Frame structure	address code	function code	data code		CRC check code
				initial register address	number of register	
Host request	Byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes
	data range	1～247	0x03/ 0x04		max 100	CRC16
	message example	0x01	0x03	0x00 0x00	0x00 0x06	0xC5 0xC8
	frame structure	address code	function code	data code		CRC check code
				byte of register	register value	
Slave response	byte	1 byte	1 byte	1 byte	12 bytes	2 bytes
	message example	0x01	0x03	0x0C	12-byte data	CRC16

Remark: the initial register address in host inquiry is the initial address of the data collected from power grid. The number of register indicates the length of the data. In the upper list the register address "0x00 0x00" indicates the initial address of phase voltage float data of three phases, and the number of register "0x00 0x06" indicates the length of the data is 6 (three float data occupies six registers). Please refer to appendix 1 MODBUS-RTU communication address information table.

1.2 Write setting register value（function code 0x10）

	frame structure	address code	function code	data code				CRC check code
				initial relay address	relay length	relay byte	written value	
host request	byte	1 byte	1 byte	2 bytes	2 bytes	1 byte	2N bytes	2 byte
	data range	1～247	0x10	0x0802	0x0001	N		CRC16
	message	0x01	0x10	0x08	0x00 0x01	0x02	0x01	0x2FE2

	example			0x02			0x00	
slave response	frame structure	address code	function code	data code: initial relay address	data code: relay length			CRC check code
	byte	1 byte	1 byte	2 bytes	2 bytes			2 bytes
	message example	0x01	0x10	0x08 0x02	0x00 0x01			0xA269

Remark：Please strictly follow the Meter setting information address list in appendix when writing setting register. Do not change the reserved data. Written data should not exceed set range. Wrong operation may cause meter damaged.

Appendix 1 MODBUS-RTU communication address information list

0x03/0x04 command data register address:

Address	Format	Data description	Unit	R/W
float type data				
0000-0001	float	Voltage	V	R
0002-0003	float	Current	A	R
0004-0005	float	Active power	kW	R
0006-0007	float	Reactive power	kvar	R
0008-0009	float	Apparent power	kVA	R
000A-000B	float	Power factor		R
000C-000D	Float	Frequency	1Hz	
000E-000F	float	Import active energy	kWh	R
0010-0011	float	Export active energy	kWh	R
0012-0013	float	import reactive energy	kvarh	R
0014-0015	float	export reactive energy	kvarh	R
0016-00FF	---			
Time data				
0100	Char	Time	year-month	R

0101	Char	Time	day-hour	R
0102	Char	Time	minute-second	R
0103	Char	Time	week-reserved	R
0104-0105	---			
Energy data				
0106-0107	Long	Import active energy	10Wh	R
0108-0109	Long	Export reactive energy	10Wh	R
010A-010B	Long	import reactive energy	10varh	R
010C-010D	Long	export reactive energy	10varh	R
010C-0117	Reserved			
0118-0119	Long	Active energy [total]	10Wh	R
011A-011B	Long	Active energy [P1]	10Wh	R
011C-011D	Long	Active energy [P2]	10Wh	R
011E-011F	Long	Active energy [P3]	10Wh	R
0120-0121	Long	Active energy [P4]	10Wh	R
0122-012B	Long	Active energy of present month [total, P1, P2, P3, P4]	10Wh	R
012C-0135	Long	Active energy of last month [total, P1, P2, P3, P4]	10Wh	R
0136-013F	Long	Active energy of previous 3rd month from present month [total, P1, P2, P3, P4]	10Wh	R
0140-0149	Long	Active energy of previous 4th month from present month [total, P1, P2, P3, P4]	10Wh	R
014A-0153	Long	Active energy of previous 5th month from present month [total, P1, P2, P3, P4]	10Wh	R
0154-015D	Long	Active energy of previous 6th month from present month [total, P1, P2, P3, P4]	10Wh	R
015E-0167	Long	Active energy of previous 7th month from present month [total, P1, P2, P3, P4]	10Wh	R
0168-0171	Long	Active energy of previous 8th month from	10Wh	R

		present month [total, P1, P2, P3, P4]		
0172-017B	Long	Active energy of previous 9th month from present month [total, P1, P2, P3, P4]	10Wh	R
017C-0185	Long	Active energy of previous 10th month from present month [total, P1, P2, P3, P4]	10Wh	R
0186-018F	Long	Active energy of previous 11th month from present month [total, P1, P2, P3, P4]	10Wh	R
0190-0199	Long	Active energy of previous 12th month from present month [total, P1, P2, P3, P4]	10Wh	R
019A-01FF	---			
Electrical parameter data				
0200	Int	Voltage	0.1V	R
0201	Int	Current	0.01A	R
0202	Int	Active power	10W	R
0203	Int	Reactive power	10var	R
0204	Int	Apparent power	10VA	R
0205	Int	Power factor	0.001	R
0206	Int	Frequency	0.01Hz	R
0207-00FF	---			
Demand and extreme value				
0600	Int	Max. voltage value	0.1V	R
0601	Reserved			
0602	Int	Historical max. current value	0.01A	R
0603	Int	Historical max. active power value	10W	R
0604	Int	Historical max. reactive power value	10var	R
0605	Int	Historical max. apparent power value	10VA	R
0606	Int	Historical min. voltage value		
0607	Reserved			
0608	Int	Historical min. current value	0.01A	R
0609	Int	Historical min. active power value	10W	R
060A	Int	Historical min. reactive power value	10var	R

060B	Int	Historical min. apparent value	10VA	R
060C-0617	Extreme electrical parameter value in present month, same as above			
0618-0623	Extreme electrical parameter value in last month, same as above			
0624-062F	Extreme electrical parameter value in the month before last month, same as above			
0630	Int	Present current demand value	0.01A	R
0631	Int	Present active power demand value	10W	R
0632	Int	Present reactive power demand value	10var	R
0633	Int	Present apparent power demand value	10VA	R
0634-0637	Int	Demand value in last period, same as above		
0638-063B	Int	Historical max. demand value, same as above		
063C-063F	Int	Max. demand value in present month, same as above		
0640-0643	Int	Max. demand value in last month, same as above		
0644-0647	Int	Max. demand value in the month before last month, same as above		
0x648-065F	Reserved			
FFF6-FFF7	Unsigned Long	Serial Number		R

System setting parameter

Address	Format	Data description	Unit	R/W
System setting				
0800-0804	---			
0804	Int	High byte: #1 communication address	1-247	R/W
		Low byte: #1 baud rate	0：1200bps 1：2400bps 2：4800bps 3：9600bps	
0805	Int	High byte: #1 check mode	0：N,8,1 1：E,8,1 2：O,8,1 3：N,8,2	R/W
0806-081f	Reserved			

0820	Int	Demand item	Defaulted as three phase circuit, active power, reactive power and apparent power	R
0821	Int	#1 demand work mode	0： slip mode 1： fixed mode	R/W
0822	Int	#1 slip time（t）	1～9999s	R/W
0823	Int	#1 calculation period（T）	1～30t	R/W
0824-082F	Char	Time zones in first set of tariffs	Hour and minute of twelve time zones. No.1 time zone starts from 00:00.	R/W
0830-083B	Char	Times zones in second set of tariffs	Hour and minute of twelve time zones. No.1 time zone starts from 00:00.	R/W
083C-0841	Char	Rates of first set of tariffs	Rates correspond to time zones in first set of tariffs: 0-P1, 1-P2, 2-P3, 3-P4	R/W
0842-0847	Char	Rates of second set of tariffs	Rates correspond to time zones in second set of tariffs: 0-P1, 1-P2, 2-P3, 3-P4	R/W
0848-084D	Char	Select one set of tariffs for a month	0：first set of tariffs 1：second set of tariffs	R/W
084E	Char	Meter reading time	Automatic meter reading: day, hour	R/W
084F-08FF	---			

The information in this document is subject to changes without any further notice.

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