

3 phase energy meter RS485 MODBUS RTU protocol Multifunctional 3*AC220/380V 3*AC230/400V Din Rail wattmeter

Application

CAUTION: MAX baudrate 9600

**CAUTION: DTM125SR provides power consumption (kWh) readings
only on rs485 (not other parameters are possible to read on rs485)**

- 1.DTM125SD is DIN rail three phase four wire active electronic energy meter. It adopts many advanced technologies of research and development, like microelectronic-techniques,specialized large-scale IC (integrated circuit), digital sampling and processing technology.
- 2.The technical performances completely conform to International Standards IEC 62053-21 for Class 1 active energy meter.
- 3.It can directly and accurately measure the load active energy consumption in the AC networks of rated frequency 50Hz or 60Hz.
- 4.It has features with excellent long-term reliability,small volume,light weight,perfect appearance,easy installation,etc.
- 5.This meter has already got the patent certificate from China State Intellectual Property Office at present. Patent certificate NO. 2012 3 0473770.X, any other country patent certificate are in assessing.

Function and specification

- 1.Available as 35mm DIN standard rail mounted, conforming to Standards DIN EN 50022.
- 2.Six pole width (modulus 12.5mm),complying with Standards DIN43880.
- 3.Standard configuration 5+1 LCD display (99999.9kWh).
- 4.RS485 (communication protocol MODBUS-RTU) remote meter reading function.
- 5.Display and reading:electricity、 current、 voltage、 frequency、 power factor(DDM125SD).
- 6.Standard configuration pulse output passive (polarity),May select distant pulse output passive (nonpolarity).and contact with all kind of AMR system conveniently,complying with standard IEC 62053-31 and DIN 43864.
- 7.Bicolor LED instructions power supply state (green) and signal of energy impulse (red).

8. Automatic detection the direction of the flow of load current. And Instructions on LED (when display HELP 1 on LCD, that means the reverse of the flow of load current).

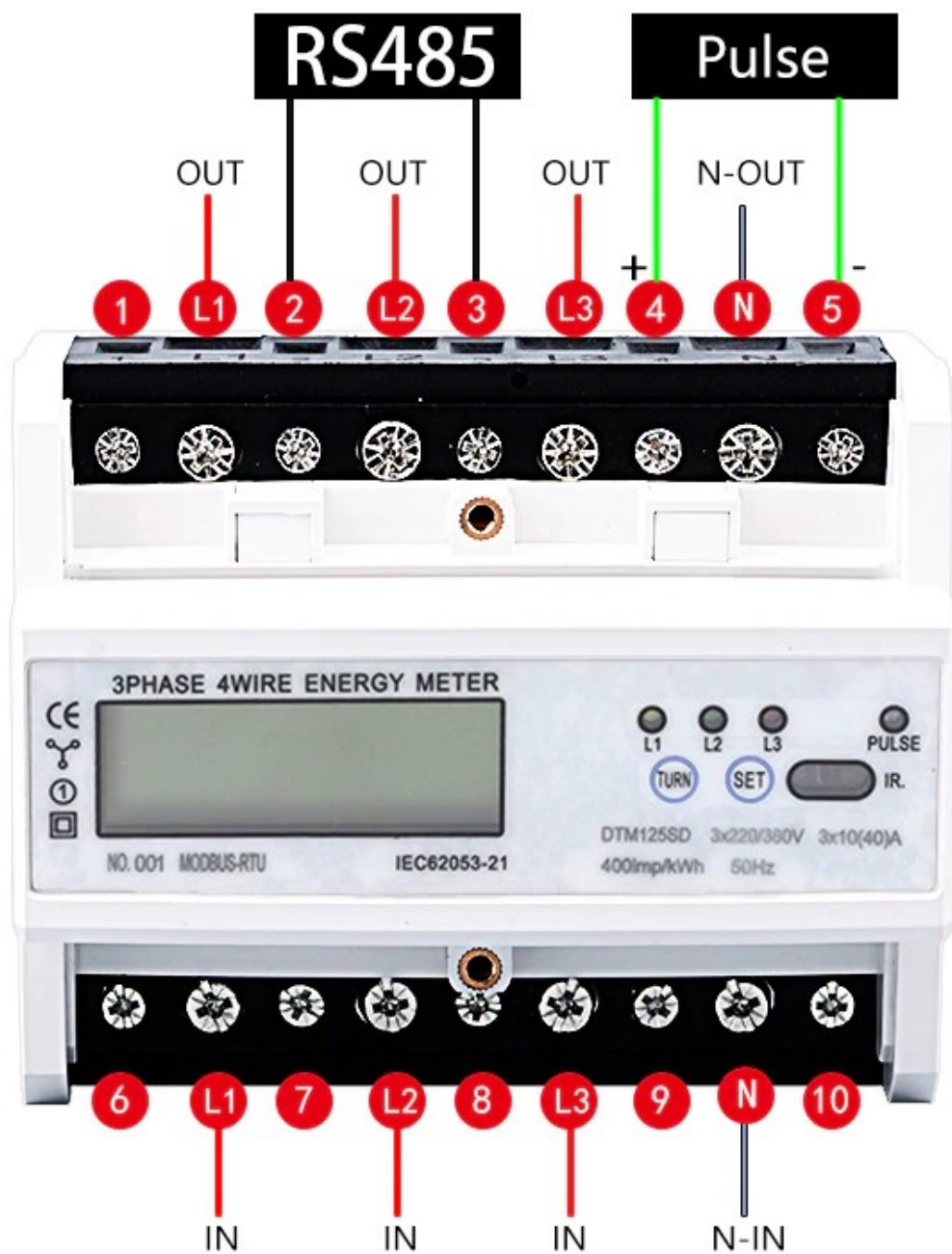
9. Direction measurement AC active energy consumption. It is nothing with direction of the flow of load current. Complying with standard IEC 62053-21.

10. Directly type S connection.

11. Extension terminals cover, in order to protect to use safety.

Type	Accuracy	Rated voltage	Frequency	Display mode	Rated current	Starting Current
DTM125SR	Class 1.0	3*220/380V 3*230/400V	50Hz 60Hz	LCD Display	10(40)A 15(60)A 20(80)A 30(100)A	0.4%IB
DTM125SD	Class 1.0	3*220/380V 3*230/400V	50Hz 60Hz	Multifunctional LCD Display	10(40)A 15(60)A 20(80)A 30(100)A	0.4%IB

Direct access type





RS485 communication meter reading application (communication protocol) and register address.

The energy meter through its RS485 interface to achieve long-range copy of the table, such as electricity energy data. And through its infrared communication interface with a handheld computer to achieve close-up copy of the table of energy data. Encoding format, parity (even parity) and data transmission (eight data bits, a stop bit) in line with MODBUS-RTU standards. Communication baud rate defaults to 1200bps, 2400bps, 4800bps, 9600bps.

MODBUS-RTU communication protocol Description:

1.the data format:

Address + function code + data + CRC check code

2.the register type

This meter uses two types of registers, individually addressed

The first is the data register, read-only, using the command code 0x04 to read.

The second category is the parameter register, readable and writable, using the command code 0x03 read, write parameters using 0x10

3.data format

Float type data: Read the internal data within the meter in line with IEEE-754 standard floating-point number, data format is 32-bit 4-byte single-precision floating-point data format.

4.Data register list

Data register address		Register Description			
HI BYte	LO Byte	Description	unit	Format	Mode
00	00	A phase voltage	V	Floating point	Read-only
00	02	B phase voltage	V	Floating point	Read-only
00	04	C phase voltage	V	Floating point	Read-only
00	08	A line current	A	Floating point	Read-only
00	0A	B line current	A	Floating point	Read-only
00	0C	C line current	A	Floating point	Read-only
00	10	Total active power	KWh	Floating point	Read-only
00	12	A phase active power	KWh	Floating point	Read-only
00	14	B phase active power	KWh	Floating point	Read-only
00	16	C phase active power	KWh	Floating point	Read-only
00	18	Total reactive power	KWh	Floating point	Read-only
00	1A	A phase reactive power	Var	Floating point	Read-only
00	1C	B phase reactive power	Var	Floating point	Read-only
00	1E	C phase reactive power	Var	Floating point	Read-only
00	2A	A phase power factor		Floating point	Read-only

00	2C	B phase power factor		Floating point	Read-only
00	2E	C phase power factor		Floating point	Read-only
00	36	frequency	frequency	Floating point	Read-only
01	00	Total active electricity power	KWh	Floating point	Read-only
04	00	Total reactive electricity power	KwH	Floating point	Read-only

5、Parameters register list

Parameter register address		Register Description		
High byte	Low byte	Description	form	mode
00	00	Baud rate (1200 2400 4800 9600)	Floating point	Read & write
00	02	Check Digit (0:Even 1:odd 2:none)	Floating point	Read & write
00	08	Communications Address((Meter NO:1-247)	Floating point	Read & write
00	10	Relay control(1:switch on 2:switch out)	Floating point	Read & write

6、Illustrating

1) The first category register (data register) read and operation

read voltage:

Issued data (HEX): 01 04 00 00 00 02 71 CB

Data Descriptions:

Data	Detailed description
01	Instrument address
04	Function code, read data register

00 00	reading the data from the 0000 meter internal register address
00 02	Read data length for two words four bytes of data
71 CB	CRC checksum data for the front, where the high front and low in the post

Returns: 01 04 04 43 6B 58 0E 25 D8

Data Description:

Data	Detailed description
01	Instrument address
04	Return function code
04	Returned data length is 4 bytes of data length
43 6B 58 0E	The data returned as a 4-byte data type float
25 D8	Return CRC checksum

2)The second category register (parameter register) read and operate read the meter Address:

Issued data (HEX):01 03 00 08 00 02 45 C9

Date descriptions:

Data	Detailed description
01	Instrument address
03	Function code, read parameter register:
00 08	reading the data from the 00 08 meter internal register address
00 02	Read data length for two words(four bytes)of data
45 C9	CRC checksum data for the front, where the high front and low in the post

Returns: 01 04 03 40 00 00 00 EF F3

Data Description:

Data	Detailed description
01	Instrument address
03	Return function code
04	Returned data length is 4 bytes of data length
40 00 00 00	The data returned as a 4-byte data type float
EF F3	Return CRC checksum

3)The second category register (parameter register) write and operation

Modify the meter address:

Issued data (HEX):01 10 00 08 00 02 04 40 00 00 00 E7 C9 (meter address modification 02)

Date descriptions:

Data	Detailed description
01	Instrument address
10	Function code, writing instruments internal register data
00 08	write the data from the instruments internal register address 0008
00 02	Write data length for two words, 4 bytes of data
04	Write data length of 4 bytes of data
40 00 00 00	Write the meter address, 4 bytes of data, floating-point data
E7 C9	CRC checksum

Return:01 10 00 08 00 02 C0 0A

Indicates that the return setting was successful

Modify the meter communication speed:Issued data (HEX): 01 10 00 00 00 02 04 44 96 00 00 07 73 (Change meter communication baud rate:1200bps)

Data Description:

Data	Detailed description
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01	Instrument address
10	Function code, writing instruments internal register data
00 00	write the data from the instruments internal register address 0000
00 02	Register number, 2 (4 bytes)
04	Byte numbers, 4 bytes
44 96 00 00	Write the meter communication speed, 4 bytes of data, floating point data
25 7B	CRC checksum

Returns data:01 10 00 00 00 02 41 C8

Indicates that the return setting was successful

How to set parameters

1. Press the set button, enter the password on the screen interface, the password is 4 digits, you can use the short press (turn) key to flash a bit plus a operation, with short press (set) Key to toggle the flashing bits. After entering, use the long press set button to enter the setting parameter mode.
2. After entering the setup mode, use the short press the turn button to toggle the setting item. When you need to set an item, press the Set key to enter this parameter. This parameter will flash. The operation is similar to step 1.
3. When set up, you can press the set (set) button to set, set the correct will show good, set the unsuccessful display Err.
4. When setting the status, press the turn key to indicate exit or cancel, and the menu will return to the previous menu.

5. Enter the setup key to display the description

PASS	0000	login password↵
Addr	001	meter address↵
bd	9600	Baud rate↵
PrE 4	E	Check Digit↵
ScrL	E	circle show↵
SE E	PASS	modify password↵