

MODEL DTSU6866

USER MANUAL

Version number: 1.1

QDM31-2 3P 4W Electronic Watt-hour Meter User Manual

1. Characteristics and Range of application:

Model DTSU6866 three phase electronic meter is a kind of new style three phase whole electronic type meter, and adopt up to date micro-electronics technique and imported special large scale integrate circuit, use advanced technique of digital sampling technique and SMT techniques etc. The meter are completely conformed to the relative requirements of the National Standard GB/T17215-2008 and International Standard IEC62053-21 on the meter (Class 1 or Class 2).

The meter is used for measuring three phase four wire active energy power consumption in a rated frequency of 50Hz or 60Hz three phase alternating current circuit. It can accurately and directly measure active energy consumption from positive and reverse directions. It has following features: Good reliability, small volume, light weight, specious nice appearance, advanced techniques.

The meter is installed indoors. The site conditions shall be assumed as follows: The ambient temperature is $-25\sim 55^{\circ}\text{C}$, relative humidity is not more than 95%. There isn't heavy corrosive gas or any influence of dust and insects etc.

2. Basic specifications and main technical parameters:

2.1 Specifications

Name	Model	Class of precision	Rated voltage U_b	Rated current (A)
3P 4W Electronic Watt-hour Meter	DTSU6866	1	3x220/380V 3x57.5/100V	5A/CT, 3(15), 5(30), 10(50), 15(90), 20(100), 5(40), 5(100)
		2		

Remark: In the column of Rated Current, the value before the bracket is demarcated current value I_b , and the value in the bracket is the maximum current I_{max} .

2.2 Technical parameter

2.2.1 Basic errors:

With balanced loads

Current value		Power factor (COS ϕ)	Error limits of percentage (%)	
Direct connection	Connection through CT		Class 1	Class 2
0.05Ib	0.02Ib	1.0	± 1.5	± 2.5
0.1Ib	0.05Ib	0.5L	± 1.5	± 2.5
		0.8C	± 1.5	—
0.1Ib~Imax	0.05Ib~Imax	1.0	± 1.0	± 2.0
0.2Ib~Imax	0.1Ib~Imax	0.5L	± 1.0	± 2.0
		0.8C	± 1.0	—

With single phase load

Current value		Power factor (COS ϕ)	Error limits of percentage (%)	
Direct connection	Connection through CT		Class 1	Class 2
0.1Ib~Imax	0.05Ib~Imax	1.0	± 2.0	± 3.0
0.2Ib~Imax	0.1Ib~Imax	0.5L	± 2.0	± 3.0

2.2.2 Starting

The dial runs ceaselessly when the meter is in circumstance of the rated voltage, rated frequency and $\cos \phi = 1.0$, and when current loaded is as Table following.

Connecting mode	Class 1	Class 2
direct	0.004Ib	0.005Ib
With transformer	0.002Ib	0.003Ib

2.2.3 Creeping

As no current in the circuit and the voltage value is 115% percent of the rated voltage, the testing output no more than one impulse.

2.2.4 Insulation performance

All circuit interval of the meter can withstand impulse voltage with waveform $1.2/50 \mu S$, leak value 6KV, and it can not occur electric arc or rout as it is tested at the same pole.

All circuit insulating earthing of the meter can withstand AC voltage 2KV with actual sine wave 50Hz and it can withstand 1 minutes.

2.2.5 Working voltage limit: 70~130% Ub

2.2.6 Power consumption: $\leq 2W$ and 10VA / phase

3. Installation and usage:

3.1 Installation notice points and ways

3.1.1 The meter can be installed and used after being test and sealed with letterpress printing. Without letterpress printing or storage time is too long the meter must be reset.

3.1.2 When take out the meters from original packing, if the inner packing or meter cover is found broken, then do not install the meter, please contact company technical service dept.

3.1.3 Only experienced electrician or professional technician can install the meter, and confirm to read through the Usual Manual.

3.1.4 The meter must be installed ventilate and arid place. and must be on the wall of fire resistance and uneasily shaking.

3.1.5 The meter must be installed in the protective box in the dusty place or against possible mechanical injury.

3.1.6 Connecting must accord with meter case body connecting or the connecting drawing of the Usage Manual. Commend to use soft brass wires to input to avoid that the meter shall be burnt due to loose contact.

3.1.7 When meter connect to electricity net rightly, the meter power indication light should be bright up.

3.2 Usage Explain

3.2.1 In the too much thunderstorm place to adopt measures to avoid lighting injury.

3.2.2 The load capacity of the meter is between 0.05Ib~Imax (Direct) or 0.02Ib~Imax (with transformer). If the capacity exceeds above the register shall not be accurate or the current coil shall be heated and burnt.

3.2.3 When the meter is connected with CT, the total energy consumption shall be that the numbers read multiply the rate of CT.

3.2.4 Data display: Adopt 7 digit liquid crystal display.

3.2.5 Impulse indication: When connecting meter load using energy, the impulse indicator light twinkle display (Lighting about 80ms).

3.2.6 communication operation: It has function of writing or reading operation of palm computer (read meter machine) and RS485 port.

3.2.7 communication speed: 9600bps(default), 1200bps, 2400bps, 4800bps for optional.

3.2.8 communication protocol: MODBUS-RTU, 8bit data and no parity.

3.2.9 Data save: The data can be stored more than 10 years when power cut.

3.2.10 Reading the meter

DTSU6866 has a LCD screen. The screen can display electricity energy data and meter information. The display mode is recycle mode.

3.2.10.1 total active energy:

- Indication: NNNNNN.N kWh

Example: the total active energy is 167208.7 kWh.

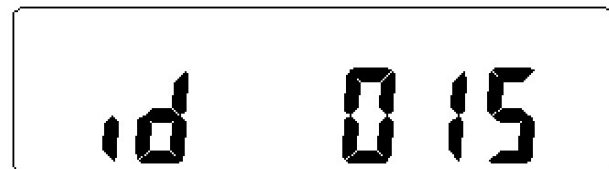
The LCD screen displays the total active energy in a large, black, seven-segment font. The digits are '167208.7' followed by the unit 'kWh'.

3.2.10.2 Meter ID Number

- Indication: Id NNN

3 digits displayed in LCD screen.

Example: Meter ID Number is 15

The LCD screen displays the meter ID number. It shows 'Id' followed by a space and the digits '015'.

3.2.10.3 RS485 Communication Baud Rate:

- indication: bp NNNN

Example: the communication Baud Rate is 9600.

The LCD screen displays the RS485 communication baud rate. It shows 'bp' followed by a space and the digits '9600'.

3.2.10.4 CT Ratio:

- Indication: NNNN

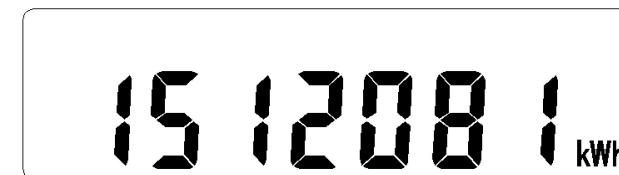
Example: CT Ratio is 200:5

The LCD screen displays the CT ratio. It shows the digits '200'.

3.2.10.5 total active energy(primary for CT connect style):

- Indication: NNNNNNNkWh

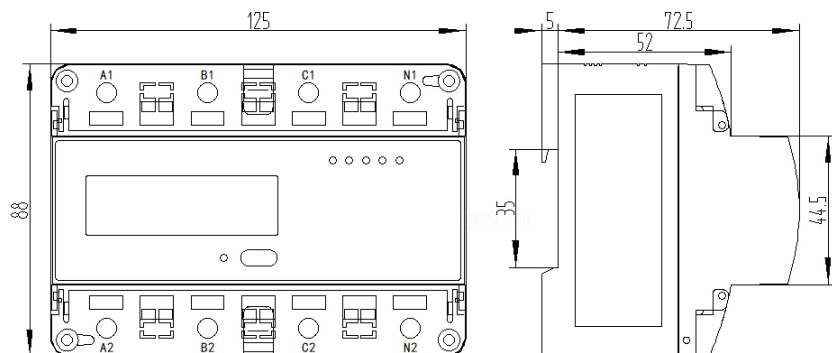
Example: primary total active energy is 1512081kWh

The LCD screen displays the primary total active energy. It shows the digits '1512081' followed by the unit 'kWh'.

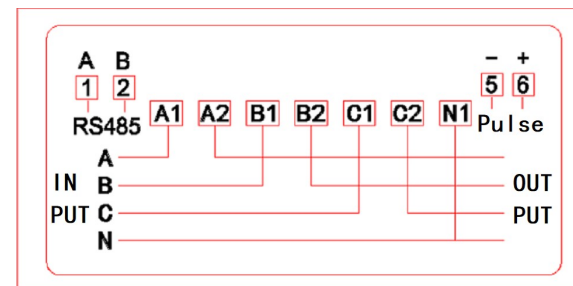
Address (Hex)	Data Model	Parameter Name	Access (R/W)	Function code	Units
0x0000 0x0001	Dword	Total active energy	R	0x03	kWh
0x0015 High byte	Char	Meter ID	R/W	0x03/ 0x10	001-247
0x0015 Low byte	Char	Communication baudrate	R/W	0x03/ 0x10	1200bps=04 2400bps=03 4800bps=02 9600bps=01(default)
0xFE03	Word	CT Ratio	R/W	R/W	>5
0xFD00 0xFD01	Dword	Total active energy(primary for CT connect style)	R	0x03	kWh

4. Outer and connecting drawing:

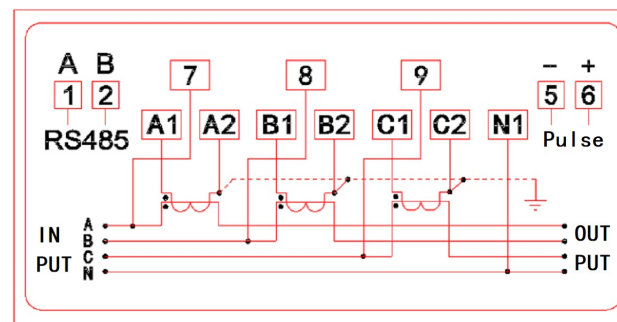
4.1 Outer drawing



4.2 Connecting drawing



Direct(Drawing 1)



Connect by CT(Drawing 2)

5. Test mode

The meter has energy impulse output port, it locates in terminal 7 and terminal 8, connect test device +5V_{DC} to terminal 8(Anode), connect signal wire to terminal 7(Cathode).

6. Transport and storage

- 6.1 Transport and storage of the meter must not be shaken and must accord with ZBY002-81
- 6.2 The meter must be stored in the original packing box and the environmental temperature is in -30℃~+65℃. Relative humidity shall not exceed 95%. And there isn't any corrosive gas. The environmental temperature shall not vary violently.
- 6.3 The meters should be in the original packing box and the boxes should be piled up no more than five on the rack. The separate meter is not suitable for storage.

7. Quality of guarantee

Within 18 months from the date of manufacture the user complies with all of above rules. If the meter still being sealed does not conform to any technical requirements of IEC 62053, or of any certification of Power Department or Measuring Department, the manufacture guarantees to repair freely or to change.