
MANUAL

OF

DTZ217(T10-1) Three Phase Four Wire

Multifunction Electronic Energy Meter



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1 GENERAL INTRODUCTION

1.1 General

DTZ217(T10-1) Three Phase Four Wire Multifunction Electronic Energy Meter is the newest smart type energy metering product. It adopts the latest integrated circuit technology and the advanced software algorithm. It complies with the relevant international IEC standards as follows:

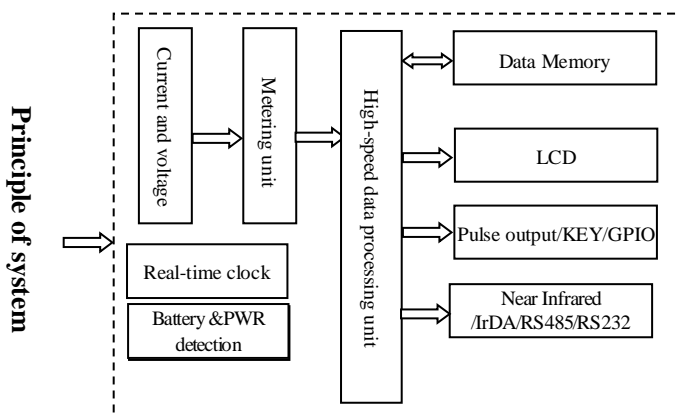
IEC62052-11

IEC62053-21/22/23:2003.

IEC62056-21/42/46/53/61/62

1.2 WORKING PRINCIPLE

The product is composed of the voltage and current high precision sampler, the high speed and high precision analog-digital converter, the high speed data processor and the data interface device. Under the control of the high speed data processor, the high speed analog-digital converter will convert the analog signal from the voltage and current high precision sampler into the digital signal for carrying out the digital arithmetic and error compensation, then the accurate active energy can be obtained and the data will be dealt with accordingly as per the requirements of the relevant demands, etc., the results of which will be stored in the data memory for providing information and carrying out the data exchange with the external interface at any time. The diagram of working principal is as follows:



1.3 TECHNICAL SPECIFICATION

1.3.1 MAIN TECHNICAL SPECIFICATION

Class	Active	0.2S/0.5S/1/ (0.1S)
	Reactive	2 /(1)
Rated Voltage		3×63.5/110V-230/400V
Nominal(Max) Current		1(2) A,5(6)A,5(100)A
Power Consumption	Voltage	<2W/10VA
	Current	<2VA
Temperature		-25~55℃
Max. Working Temp.		-40~70℃
Relative Humidity		≤95%
Voltage Range		Rate Voltage ±20%
Frequency		50Hz
Start Current		CT PT CONNECTION: 0.001In for Class 0.2S/0.5S/(0.1S) DIRECT CONNECTION: 0.004In for Class 1.0
MTBF		≥5×10 ⁴ h
Design Service Life		15 Years
Communication Protocol		IEC62056-21/42/46/53/61/62
Communication Channel		2Channels (RS485/RS232, Near Infrared)

1.3.2 Clock Accuracy:

Clock Error≤0.5s/d.℃

1.3.3 Real Time Clock Backup Battery

Nominal Voltage: 3.6V

Capacity: ≥1.20Ah

Working Temperature: -25℃~+55℃

Data Saving Time after Power off: ≥15 Years

1.3.4 Reading Meter Backup Battery

Nominal Voltage: 6V

Capacity: $\geq 1.40\text{Ah}$

Working Temperature: $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$

1.3.5 Optical Pulse & LED Pulse Output

Impulse Output Constant	Impulse Constant is related to the specification. Specific value refers to the printing on the name plate of meter.
Impulse Output Width	80ms

1.3.6 Dimension and Weight

Dimension	290*170*87(mm)
Net Weight	<2.5kg

2 FUNCTION:

2.1 Energy Measurement

- The Meter has the ability of measuring & recording Import/Export active & reactive energy separately for each quadrant.
- The meter can measure import/export energy as well as absolute value of active energy and it can be possible to activate this capability.
- The meter can be capable of measuring fundamental energy as well as total energy. Fundamental energy shall be made available on meter-display and the same only shall be used for billing purpose.
- The meter can record 18 months history energy data.

2.2 Max. Demand Measurement

- The meter shall continuously monitor & calculate the average demand in kVA during the Integration period and maximum out of these shall be stored along with date & Time in the meter's memory. The integration period shall be programmable for 15/30/60 minutes on real time basis on block / sliding

window principle that should also be programmable.

- b) The M.D. resetting should be possible in following way: Automatic reset or on a predetermined date & time of the month.
- c) It can record current month, last 1 month, last 2 months, last 3 month, last 4 months...last 18 months demand data.

2.3 Tariff & Time of Period

Up to support 8 time zones.

Up to support 8 week tables.

Up to support 8 day period tables. Day period table supports 8 periods.

Up to support 100 holidays.

Up to support 4 tariff rates.

2.4 Instant quantity Measurement

Real-time measurement of the phase voltage, current, total active power, reactive power, apparent power, total power factor, power grid frequency, active energy kWh, reactive energy kvarh, maximum active demand kW, maximum reactive demand kvar, maximum apparent demand kVA.

2.5 Load Profile

The meter is equipped with 2 load profiles with 2 channels, and its capacity is up to store 180 days records with 30 minutes interval, and adjustable registration interval of 1 minute to 1 month.

Record items can be configured.

2.6 Communication port

There are two communication ports in this meter. One is the near-infrared interface and another one is the RS485/RS232.

2.7 LED Indicator

The meter is equipped with three LED indicators: One is for the active power(imp/kWh), one is for the reactive power(imp/kvarh)and one is for alert

indicator.

2.8 Billing function

The maximum billing times for billing per month are 20 times, and the billing day can be programmable.

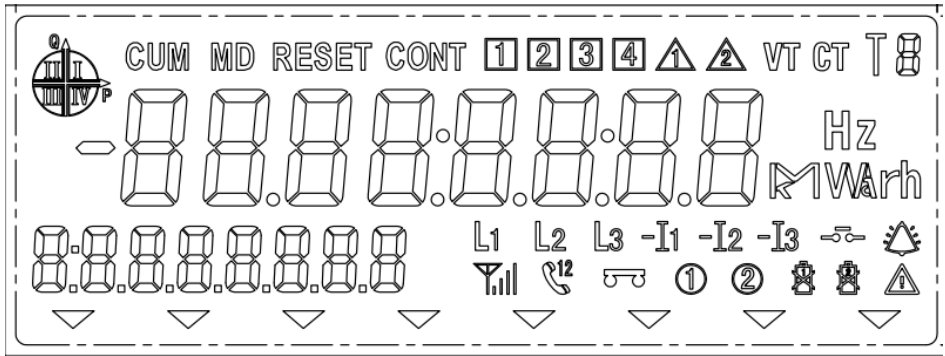
2.9 Event

The meter can detect the tampers/events and store the following abnormal tamper/ events logs.

- a) Missing potential and potential imbalance
- b) Current unbalance
- c) Current Reversal
- d) Power ON / OFF
- e) Current circuit short
- f) Cover open
- g) Terminal cover open
- h) Programming
- i) M.D. reset








3 LCD DISPLAY:

3.1 LCD Layout



3.2 Special Symbols

Display Symbols	Remarks
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	Indicator of the quadrant of the current active power (P)
	OBIS display code of parameters or register.
	It refers to the current tariff of the meter.
	The symbol indicates phase voltage status.
	The symbol will display at reverse power for each phase.
	The symbol will display when the battery voltage is under the threshold value. No.1 is for external battery. No.2 is for internal battery.
	It means that meter has a serious failure and cannot continue to work properly.

3.3 Button & Display

Meter supports up to two kinds of display modes– Auto Scroll Mode and Push Button Mode. The display content of two modes can be configured.

Scroll time can be configured, default value is 10 second. Pressing the button when the meter worked in scroll mode, the meter will switch to the push button mode ,in the push button mode the LCD display jumps to last/next display item when up/down button pressed .After 30 second (can be configured) without pressing button, the display mode will restore to scroll mode automatically.

Default display item lists under scroll mode are as follows:

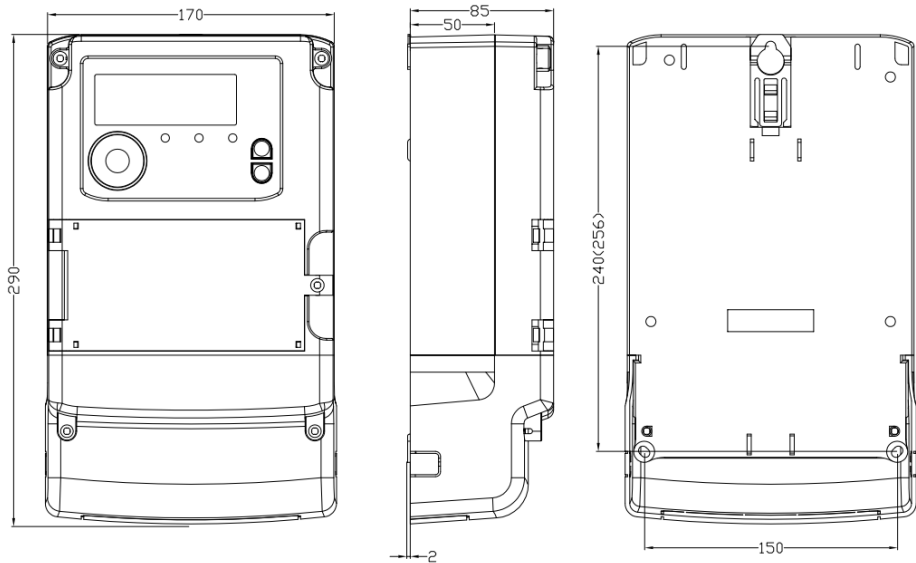
No.	OBIS	Data
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1	21.11.1	Phase A active power
2	41.11.1	Phase B active power
3	61.11.1	Phase C active power
4	1.11.1	Total active power
5	23.11.1	Phase A reactive power
6	43.11.1	Phase B reactive power
7	63.11.1	Phase C reactive power
8	3.11.3	Total reactive power
9	1.8.0	Current positive active energy
10	2.8.0	Current reverse active energy
11	3.8.0	Current positive reactive energy
12	4.8.0	Current reverse reactive energy
13	9.8.0	Current positive apparent energy
14	10.8.0	Current reverse apparent energy
15	C.80.0	Current total active energy
16	C.81.0	Current total reactive energy
17	129.8.0	Current total apparent energy
18	9.6.0	Current positive apparent demand
19	99.98.5.0	Times of demand billing
20	9.6.0.0	Positive apparent demand of last billing day
21	99.98.5.11	Event records of last demand billing
22	1.2.0	Current positive active accumulative demand
23	33.11.7	Phase A power factor
24	53.11.7	Phase B power factor
25	73.11.7	Phase C power factor
26	13.11.7	Total power factor
27	14.7	Grid frequency
28	31.7.0	Phase A current
29	51.7.0	Phase B current
30	71.7.0	Phase C current
31	32.7.0	Phase A voltage
32	52.7.0	Phase B voltage

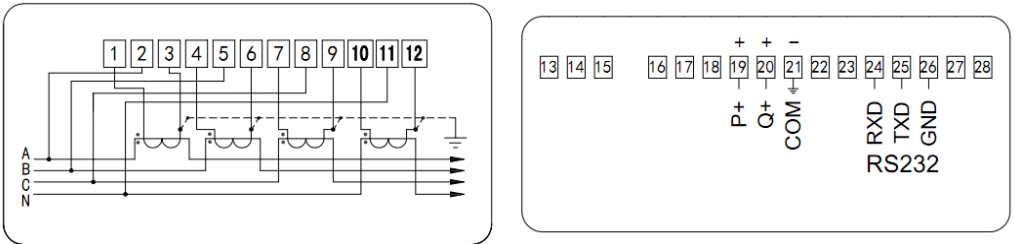
33	72.7.0	Phase C voltage
34	0.9.2	Current date
35	0.9.1	Current time
36	0.4.5	CT ratio
37	0.4.6	VT ratio

4 DIMENSION

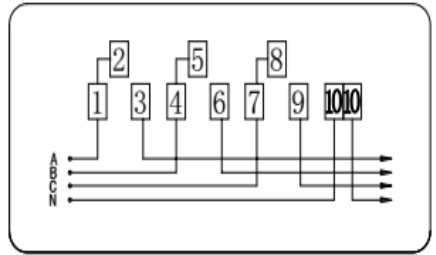
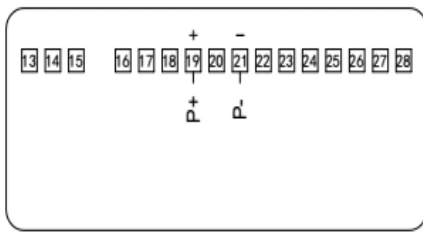
4.1 Outside Installation Dimension Diagram



4.2 Wiring Diagram



For RS237T4 Three Phase Four Wire CT Operated Type Meter



For RS237T4 Three Phase Four Wire Direct Connection Type Meter

5 NOTES:

- When connecting voltage, the voltage class on nameplate must be noticed.
- When installation, terminals must be screwed tightly, and put meters on fire-retardant stable screens. Meters should be wall-mounted installed to get the best display effect. Recommended installation height is about 1.8m.
- After connecting wire, terminal cover should be sealed
- Meter should be stored in condition that temperature is $-40\sim 70^{\circ}\text{C}$, humidity is less than 95%, and keep in original packing, stacking height should not more than 5 layers. It's not suitable for storage if meter's packing unsealed.