

# USER'S MANUAL

## 1. General Description

DTS726D-7P M type static three phase four wire energy meter for measure AC active energy and variable parameter adopt advanced large-scale integrated circuit IC and SMT manufacturing technology. They have following features: bi-directional or unidirectional energy measurement , wide voltage , anti-tamper , high accuracy and reliability , large overload , low self-consumption , small volume , light weight. The meter have RS485 communication port ,can realize remote reading .

The meter should be installed in suitable environment with ambient temperature range between  $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$ , the relative humidity less than 75% and temperature limits between  $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$ .

The meter is manufactured complying with international standard IEC62052-11 on “Electricity metering equipment (AC) General requirements tests and test conditions” and IEC62053-21 on “Static meters for active energy (classes 1 and 2)”.

## 2. Specification and Technical Parameters

### 2.1 Specification

Meter type	DTS726D-7P M
Rate frequency	50 or 60 Hz
Rated current	1.5(6)A 5(20)A 10(40)A 5(60)A 10(60)A 20(80)A 20(100)A 10(100)A
Rate voltage	3x120/208V 3x220/380V 3X230/400V 3X240/415V
Normal voltage range	$90\%U_n \sim 110\%U_n$
Limits voltage range	$70\%U_n \sim 120\%U_n$
Accuracy	Class 1
Pulse constant	See meter
RS485 port	MODBUS-RTU protocol, 1200~9600bps, None parity, default 9600bps

### 2.2 Technical Parameters

#### 2.2.1 Basic tolerance

Load Current		Power factor ( $\cos \Phi$ )	Basic error (%)
Direct connection	CT connection		1
$0.05I_b \leq I < 0.1I_b$	$0.02I_b \leq I < 0.05I_b$	1.0	$\pm 1.5$
$0.1I_b \leq I \leq I_{max}$	$0.05I_b \leq I \leq I_{max}$	1.0	$\pm 1.0$
$0.1I_b \leq I < 0.2I_b$	$0.05I_b \leq I < 0.1I_b$	0.5(L) 0.8(C)	$\pm 1.5$

$0.2I_b \leq I \leq I_{max}$	$0.1I_b \leq I \leq I_{max}$	0.5(L) 0.8(C)	$\pm 1.0$
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### 2.2.2 Self-consumption

Current circuit is less than 1.5VA

Voltage circuit is less than 2W/10VA

### 2.2.3 Starting current

Under the rated voltage , rated frequency and  $\cos \Phi = 1$  , the meter shall start and continue to register on application of 0.2%  $I_n$  (if CT is used) or 0.4%  $I_b$  .

### 2.2.4 Anti-creeping

The meter has anti-creeping logical circuit. When 115%  $U_n$  is connected to the meter and current circuit is cut , the meter shall not create more than one pulse in a stipulated time

### 2.2.5 Average-life

The meter can be used for at least 10 years in normal operation specified in this manual

### 2.2.6 LCD: 6+2 (999999.99 kWh)

## 3.Basic Features

3.1 Measuring positive & negative active energy with negative energy accumulated into positive energy, LCD display with backlight .

3.2 Measuring reactive energy

3.3 The meter also display three phase real voltage , real current , real power , real power factor , real frequency

3.4 loss phase indication in LCD

3.5 Measuring active energy without calibration under long term operation

3.6 Internal connection of current and voltage

3.7 RS485 communication port

3.8 35mm din rail installation

## 4.Working principles

Three phase voltage and current are sampled from respective sampling circuit and transformed into suitable signal, which is carried into integrated circuit , then the meter output pulse signal in positive proportion to measured power to drive step-motor counter or LCD counter to realize energy measurement. The meter has energy pulse output for testing with pulse width of  $80 \pm 20$ ms

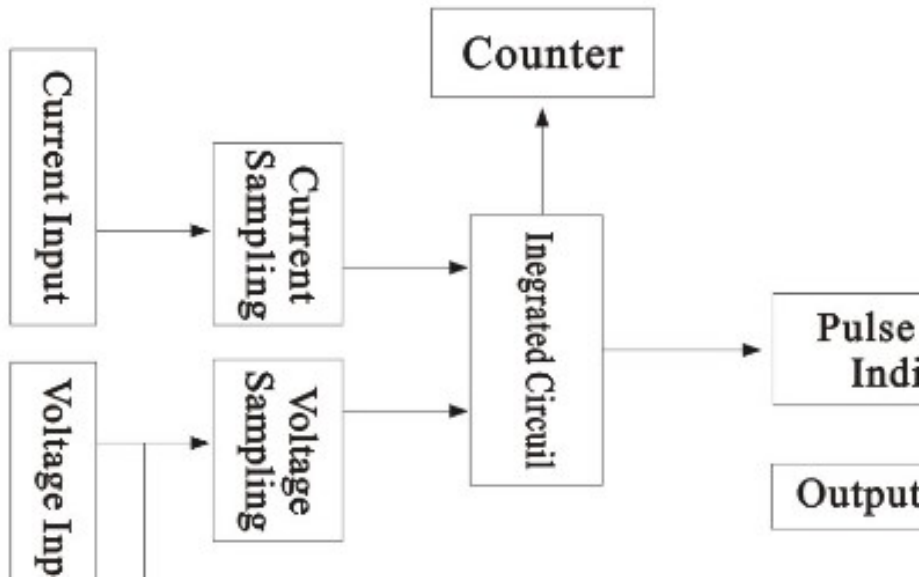


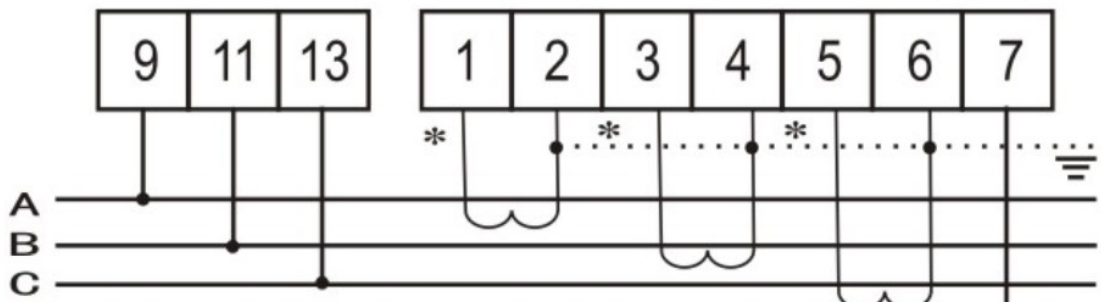
Diagram for Working Principles

### 5. Structure

The meter consists of meter base , meter cover , terminal base , terminal cover . there are lead seal on meter cover and terminal cover . A special screw is used to fix the terminal cover on which a lead seal can be installed

### 6. Usage

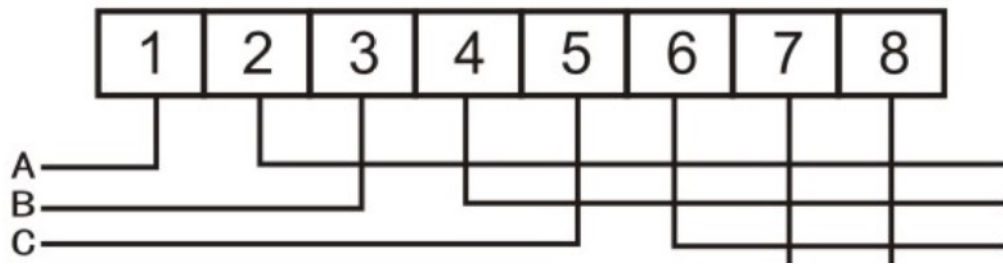
#### 6.1 Connection diagram



(current wire bottom in and up output)

#### Transformer input type connection diagram

Noting: for CT input type connection , the power consumed display in register is not fact power consumed. The fact power= the power display in register of meter X CT rate. For example , the power display in the register is 0.5 kWh and the CT is 800/5A , the fact power consumed=0.5 kWh X 160=80kWh



(current wire bottom in and up output)

**Direct input type connection diagram**

- 15 and 16      Test pulse output
- 17 and 18      RS485 port 5A and 6B

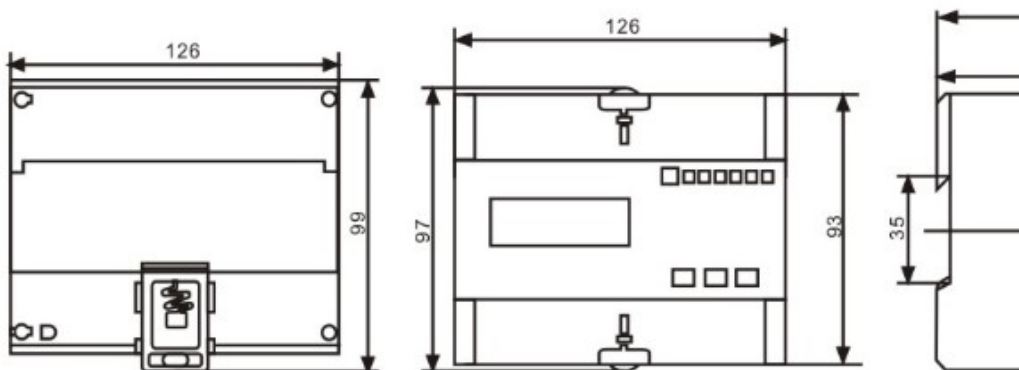
**6.2 Installation**

The meter can be installed on a 35 mm DIN rail

- 6.2.1 The meter can not installed and used until it is checked goods and sealed before delivery
- 6.2.2 The meter should be install in the water proof box indoor or outdoor . the meter’s box should be fixed on strong and flame-resistant wall with a recommended height of about 1.8 m , where there is no corrosive gas around .

6.2.3 The meter should be install fully in accordance with connection diagram on the terminal cover, it is better to use copper as the leading wire for connection. All screws should be tightened.

**6.2.4 Diagram for installation dimension**



**7. Transportation and Storage**

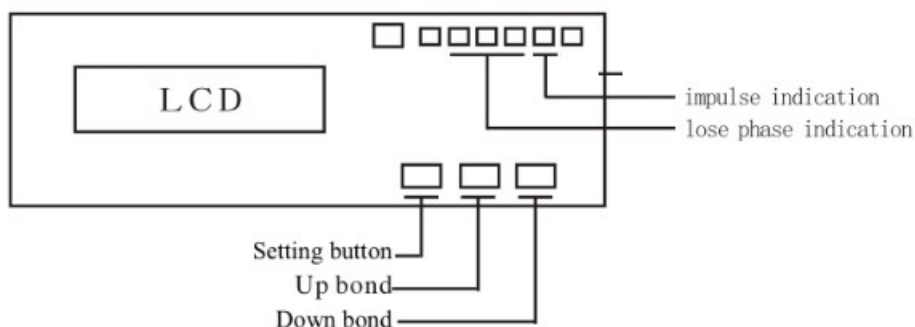
- 7.1 Heavy impact should be burdened to the products while transportation and unpacking.
- 7.2 The products should be stored in the original package and kept in place with temperature between -40°C ~+70°C, the relative humidity less than 75% and no corrosive gas around .
- 7.3 In storehouse , the meter should be placed on the shelf when kept in stock , there should not be more than 7 cartons piled up in vertical. Single-packed meters can not be piled up with more than

5 meters in vertical.

## 8. Warranty period

Within 24 months from the day of selling and provided that users operate correctly according to the requirement of the user's manual , if the meter doesn't reach its technical specification. It can be repaired or replaced in free f charge by the manufacturer .

## 9. Display Item



You can push the setting button last 3s , enter into the setting mode , and click setting button again to select setting Modbus id or baudrate , if complete, push the setting button last 3 s again to out .

	Display Item	LCD c
01	RS485 baudrate	b
02	Meter serial high 6 digit	H
03	Meter serial low 6 digit	L
04	RS485 ID	Id
05	Impulse constant          imp/kWh	Ɛ
06	Total active energy          kWh	00 000
07	Import active energy          kWh	01 000
08	Export active energy          kWh	02 000
09	Total reactive energy          kvarh	10 000
10	Balance energy          kWh	E 000
11	A phase real voltage          V	UA
12	B phase real voltage          V	Ub
13	C phase real voltage          V	Uc

17	Total conjunction active power	kw	P
18	A phase real active power	kw	PA
19	B phase real active power	kw	Pb
20	C phase real active power	kw	PC
21	Total conjunction reactive power	kvar	Q
22	A phase real reactive power	kvar	QA
23	B phase real reactive power	kvar	Qb
24	C phase real reactive power	kvar	QC
25	Total conjunction power factor	COSΦ	PF
26	A phase real power factor	COSΦ	PFA
27	B phase real power factor	COSΦ	PFB