USER'S MANUAL

1. General Description

DTS726D-7P RS485 static three phase four wire energy meter for active energy 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 should be installed in suitable environment with ambient temperature range between -25℃～+55℃,the relative humidity less than 75% and temperature limits between and-40℃～+70℃,   .

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

2.1Specification

Meter type	DTS726D-7P RS485
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%Un～110%Un
Limits voltage range	70%Un～120%Un
Accuracy	Class 1
Pulse constant	See meter

2.2 Technical Parameters

2.2.1 Basic tolerance

Load Current		Power factor (COSΦ)	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	±1.5
$0.1I_b \leq I \leq I_{max}$	$0.05I_b \leq I \leq I_{max}$	1.0	±1.0
$0.1I_b \leq I < 0.2I_b$	$0.05I_b \leq I < 0.1I_b$	0.5(L) 0.8(C)	±1.5
$0.2I_b \leq I \leq I_{max}$	$0.1I_b \leq I \leq I_{max}$	0.5(L) 0.8(C)	±1.0

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 COSΦ=1 , the meter shall start and continue to register on application of 0.2% In (if CT is used) or 0.4% Ib .

2.2.4 Anti-creeping

The meter has anti-creeping logical circuit. When 115%Un 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 Register : 5+1 (99999.9 kWh)   or 6 (999999 kWh)

　　 LCD: 5+1 (9999.9 kWh)   or 6+1 (999999.9kWh)

3.Basic Features

3.1 Measuring positive & negative active energy with negative energy accumulated into positive energy .

3.2 With three LED to show the on/off state of the power on three phases.

3.3 Measuring active energy without calibration under long term operation

3.4 Internal connection of current and voltage

3.5 High reliability due to adopting high quality components

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 appropriation 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$20ms
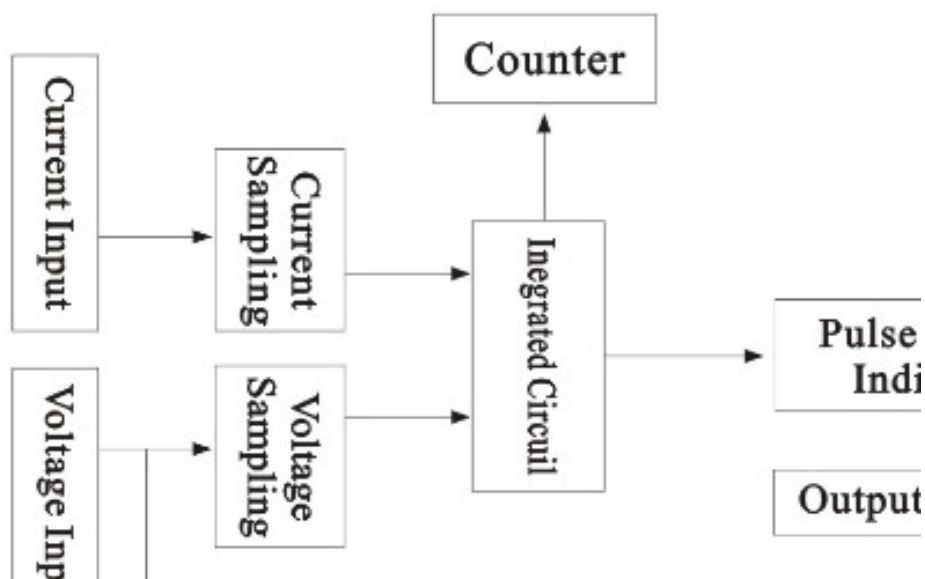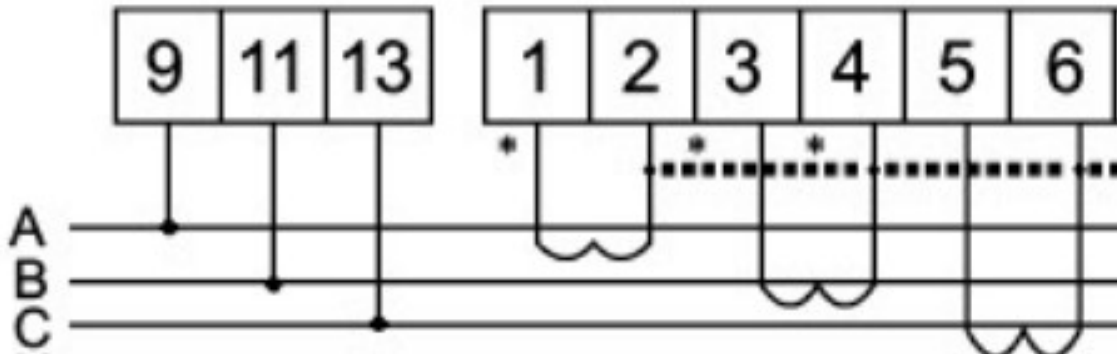
Diagram for Working Principles

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
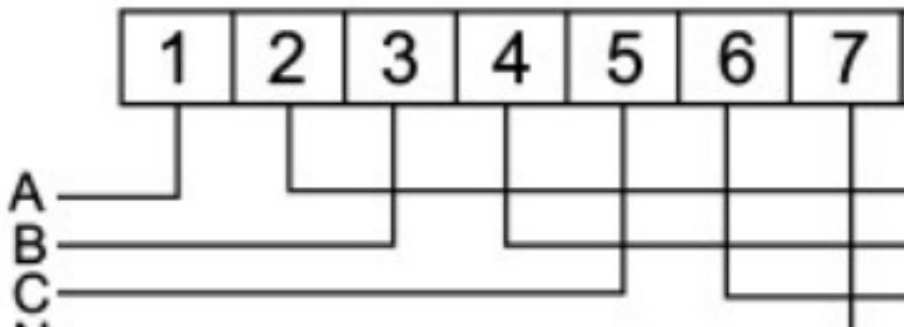
(current wire bottom in and up output)

Direct input type connection diagram

L1   A phase wire
L2   B phase wire
L3   C phase wire
N   Neutral wire
19and 20   Test pulse output

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
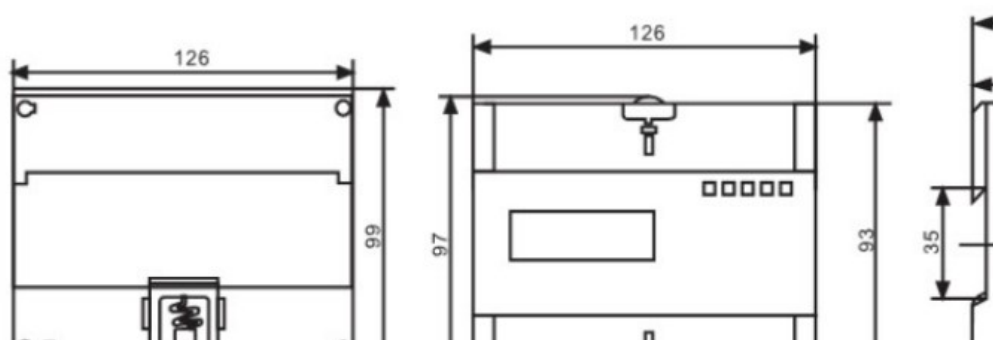
7. Transportation and Storage

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℃～+70℃,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 .

MODBUS-RTU PROTOCOL AS FOLLOWING

9.1 Read command（function code 03）

Send frame

Meter ID	Function code	Register address	Data number	Check code (CRC)
1byte	1byte	2byte	2byte	2byte

Receive frame

Meter ID	Function code	Data length n	Data area	Check code (CRC)
1byte	1byte	1byte	n byte	2byte

9.2 Write command（function code 10）

Send frame

Meter ID	Function code	Register address	Data number	Data length n	Data area	Check code (CRC)
1byte	1byte	2byte	2byte	1byte	n byte	2byte

Receive frame

Meter ID	Function code	Register address	Data number	Check code (CRC)
1byte	1byte	2byte	2byte	2byte

9.3 Energy meter register address

Register address	Data number	Data item	Data format	Data unit
0x0000	2	Total kWh	XXXXXX. XX	kWh
0x0001				
0x0015	1	ID + baud rate	First byte is ID，the second byte is baud rate，01~04 is means Respectively 9600、4800、2400、1200	

Note 1: one register address is store 2 byte data ,so the data length read as 4 byte when data number is 2 .

Note 2:：you can use ID ID(0x00) to broadcast and got data when you do not know the meter ID. But this ways is only for 1 pcs meter to connection on RS485 wire