ELMARK

The Brand of Electricity

SINGLE PHASE MULTIFUNCTION SMART DIN KWH METER

DTSD1352

Installation and operation instruction

1.Overview

DTSD1352 single phase electric meter is designed for single phase active energy measurement on low voltage system, in the same time it can measure the electrical parameters like voltage, current, power and so on. There is also RS485 can be chosen. This power meter has advantages of smaller volume, high precision, good EMC, easily installing etc.

2.Function

Function	Function description	Function provide
Measurement of kWh	Single-phase active kWh (positive and negative)	■
Measurement of electrical parameters	U、I 、P、Q、S、PF、F /Voltage, Current, Active power, Reactive power, Apparent power, Power factor and Frequency/	■
LCD Display	8 bits section LCD display	■
Key programming	3 keys to set parameters like code, address, baud rate, multi-tariff and communication protocol	■
Pulse output	Active energy pulse output	■
Multi-tariff	Adapt 4 time zones, 2 time interval lists, 14 time interval by day and 4 tariff rates	□F
Communication	Communication interface: RS485, Communication protocol: MODBUS-RTU	□C
	Infrared communication	■

■：means standard; □：means optional)

3. Technical parameter

3.1. Electric performance

Input voltage	Reference voltage	AC 220V
	Reference frequency	50Hz
	Power consumption	<10VA
Input current	Basic current	10A
	Maximum current	60A
	Starting current	4‰I_b
	Consumption	<4VA
Measurement performance	Accuracy of measuring	1 级
	Range of measuring	000000.00~99999999kWh
Clock accuracy		Error≤0.5s/d
Active pulse	Pulse width	80±20ms
	Pulse constant	1600imp/kWh LED
Communication	Interface	RS485(A+ B-)
	Connection mode	Shielded twisted pair conductors
	Protocol	MODBUS-RTU、DL/T645-07

3.2. Mechanical performance

Outline (Length × Width × Height)	88mm×36mm×70mm

3.3. Work environment

Temperature range	Work temperature	-25℃~55℃
	Storage temperature	-40℃~70℃
Relative humidity		≤95% (No condensation)
Altitude		<2000m

4.Outline (unit: mm)
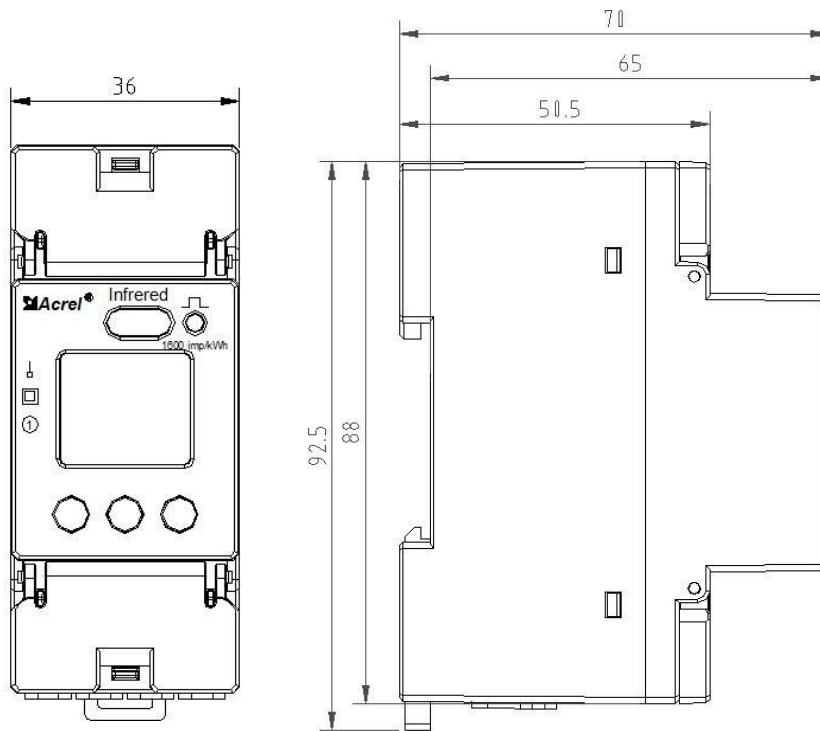
5.Wiring and installing
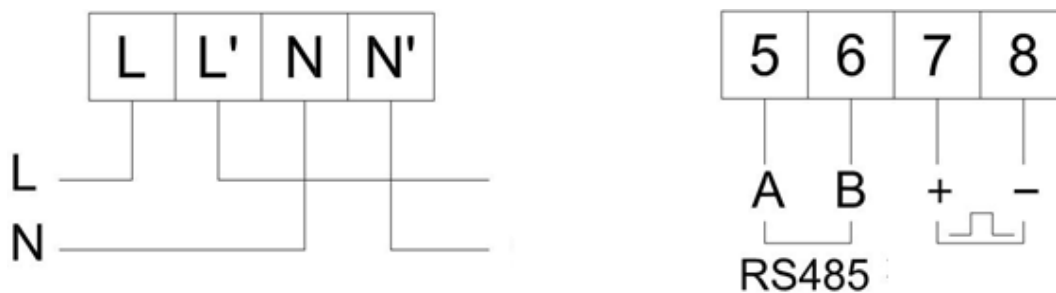
DTSD1352 single phase electric meter used the direct connecting method. Please pay attention to the direction of input and output while wiring and screw tightly (torque less than 12Nm) prevent the meter from the abnormal work.
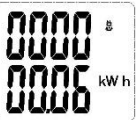
6.Operation and display
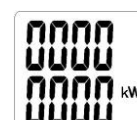
6.1. Key description
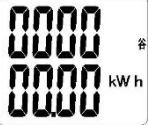
↵	Menu	Enter/ quit, save
▲	Up	Flash bit change
▼	Down	Flash bit right- ward/ next page

6.2. Display of measurement menu

Show total energy when connected. Change information while pressing down key.
Display information as following:

0000 / 00.06 kWh	(1)Total active energy	220.0 v	(2) Voltage
5.00 A	(3) Current	1.100 kW	(4) Active power
0.000 kvar	(5) Reactive power	1.100 kVA	(6) Apparent
1000	(7) Power factor	50.00 h	(8) Frequency
ddSd u 03	(9) Version of software	17 0127	(10) Date
23 59.59	(11) Time	0000 / 00.00 kWh	(12) Spike energy
0000 / 00.00 kWh	(13) Peak energy	0000 / 00.00 kWh	(14) Flat energy

0000 **00.00** kWh (15) Valley energy	
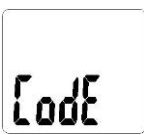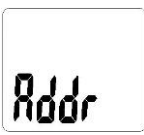
Note: There are not (10)(11)(12)(13)(14)(15) when multi-tariff function (F) is not applied.

6.3. Programming display menu

Press ↵ at any main menu and get in **PASS** interface, and then press ↵ show **P- 0000**, and enter the code. If you enter a wrong code, it will show **FAiL** and back to main menu; and if you enter a right code, you can set the parameter. After setting the parameter, it will show **SAuE** and save the change by pressing **5- YES** and quit without save by pressing **5- no**.

6.3.1. Item can be set

Num	Firstly Menu		Secondly menu		
	Symbol	Meaning	Symbol	Meaning	Range
1	**CodE**	Code	**C- 0000**	Set code	0000-9999
2	**Conn**	Communication protocol	**C- nod**	Set communication protocol	Mod-Modbus 645-DLT645
3	**Addr**	modbus	**A- 001**	Set address (modbus)	1-247
4	**bAud**	Baud rate	**b- 9600**	Set baud rate	9600, 4800, 2400, 1200

5	**PR rit**	Parity method	**nonE**	Set parity method	None/Even
6	**EF**	Multi-tariff	**no**	Set multi-tariff	No/Yes
7	**SRuE**	Save	**S- no**	Save page	No/Yes

6.3.2. Key setting process
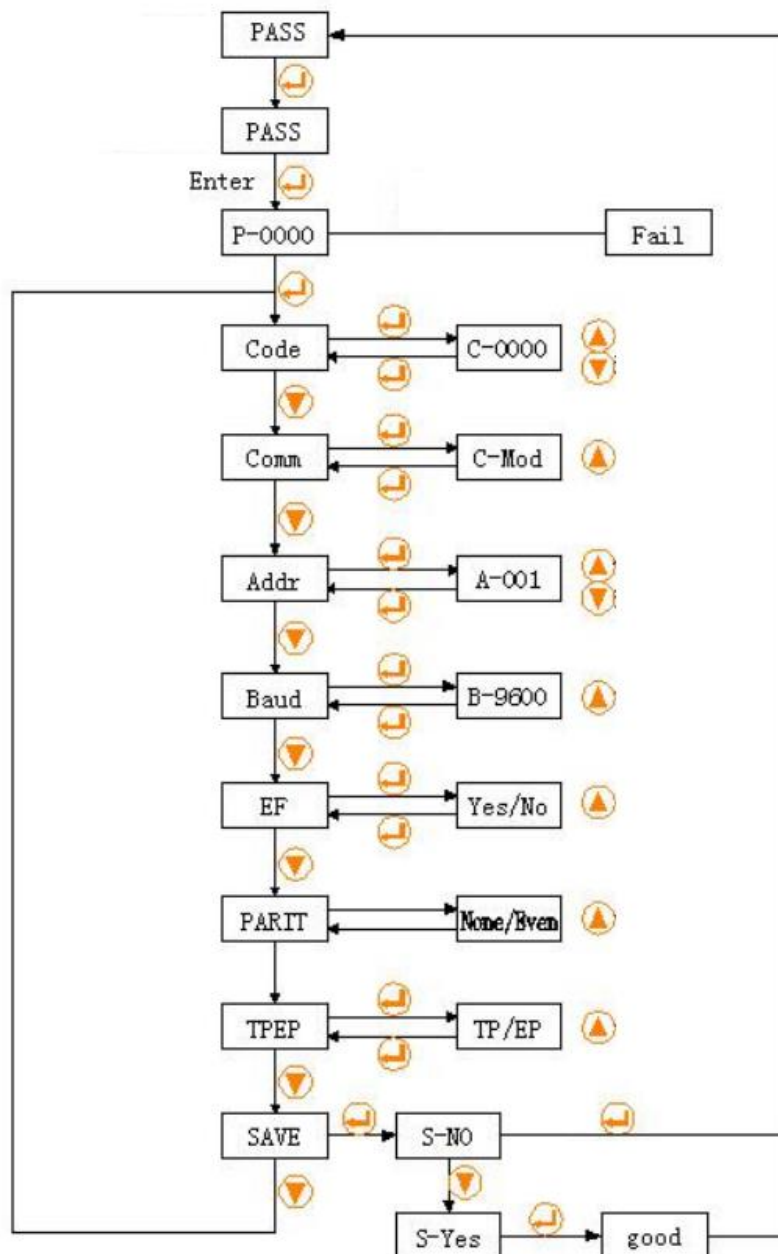
7.Communication description

7.1. Key setting process

The meters adapt Modbus and DL/T645 protocol. Please refer to the relevant standards for more information. The multi-tariff data mean nothing when multi-tariff function (F) is not applied.

7.2. MODBUS Address list

Address	Variable	Length	R/W	Notes
0000H	Current total electricity	4	R	
0001H				
0002H	Current spike electric energy	4	R	
0003H				
0004H	Current peak electric energy	4	R	
0005H				
0006H	Current flat electric energy	4	R	
0007H				
0008H	Current valley electric energy	4	R	
0009H				
000AH	Code	2	R/W	
000BH	U Voltage	2	R	
000CH	I Current	2	R	
000DH	P Active power	2	R	
000EH	Q Reactive power	2	R	
000FH	S Apparent power	2	R	
0010H	PF Power factor	2	R	
0011H	Frequency	2	R	
0012H	Year, month	2	R/W	
0013H	Day, hour	2	R/W	
0014H	Minute, second	2	R/W	
0015H	Address	1	R/W	1~247
0015H	Communication baud rate	1	R/W	1: 9600 / Baud 2: 4800/ Rate：3:2400; 4:1200
0016H …… 0021H	Reserve			
0022H	Total electric energy of last month	4	R	
0023H				
0024H	Spike electric energy of last month	4	R	
0025H				
0026H	Peak electric energy of last month	4	R	
0027H				
0028H	Flat electric energy of last month	4	R	
0029H				
002AH	Valley electric energy of last month	4	R	
002BH				

002CH	Total electric energy of last 2 month	4	R	
002DH				
002EH	Spike electric energy of last 2 month	4	R	
002FH				
0030H	Peak electric energy of last 2 month	4	R	
0031H				
0032H	Flat electric energy of last 2 month	4	R	
0033H				
0034H	Valley electric energy of last 2 month	4	R	
0035H				
0036H	Total electric energy of last 3 month	4	R	
0037H				
0038H	Spike electric energy of last 3 month	4	R	
0039H				
003AH	Peak electric energy of last 3 month	4	R	
003BH				
003CH	Flat electric energy of last 3 month	4	R	
003DH				
003EH	Valley electric energy of last 3 month	4	R	
003FH				
0040H … 0047H				
0048H	Test method	2	R	0000 None 0002 Even
0049H … 0067H	Reserved			
0068H	Current forward active total electric energy	4	R	
006AH	Current forward active spike electric energy	4	R	
006CH	Current forward active peak electric energy	4	R	
006EH	Current forward active flat electric energy	4	R	

0070H	Current forward active valley electric energy	4	R	
0072H	Current reversing active total electric energy	4	R	
0074H	Current reversing active spike electric energy	4	R	
0076H	Current reversing Active peak electric energy	4	R	
0078H	Current reversing active flat electric energy	4	R	
007AH	Current reversing Active valley electric energy	4	R	
007CH … 0081H	4 time zones	3×4	R/W	
0082H … 0096H	14-period of time Parameters setting information	3×14	R/W	The first time list
0097H … 00ABH	14-period of time Parameters setting information	3×14	R/W	The second time list