3 Phase 4 Wire
Multi Circuit Energy Meter
DZS400

Heyuan Intelligence Technology Co., Ltd.

IMPORTANT DECLARATIONS

Please read this manual carefully before the product is operated. And once you start operating the meter, you'll be considered to have read this manual and accept all our terms. Heyuan shall not be responsible or liable for any damages or injuries caused by improper meter installation and/or operation.

Attention: the following symbols in this manual refer to meanings as follows

⚡ **Electric Shock Symbol: Carries information about procedures which must be followed to reduce the risk of electric shock and danger to personal health**

⚠ **Safety Alert Symbol: Carries information about circumstances which if not considered may result in injury or death**

The meter must be installed and operated by one who has experience with high-voltage devices or has qualifications. Please connect the meter to correct voltage before operating the meter. Please install and use the meter according to the user manual. Heyuan shall not be responsible or liable for any damages or injuries caused without following the instructions in the user manual.

Contents

Chapter 1 Meter Overview

The DZS400 is an advanced, three phase multi-circuit networked multifunctional energy meter. It is widely used in power distribution sites, energy management systems and intelligent monitoring systems of different industries. It can monitor up to 4* three phase circuits: current, voltage, frequency, active energy, reactive energy, four-quadrant reactive energy etc. Equipped 1-channel 485 communication interfaces support standard DL/T645-1997/2007, Modbus RTU communication protocol.

Its main functions are as follows:

◆ Measuring combination active/reactive energy, reactive energy of four quadrants for each circuit

◆ Display in a cycle or by pressing button

◆ With load record, can record the load of each parameter per hour

◆ With many kinds of electric quantity freezing: the integral point freezing, fixed time freezing, instantaneous freezing, agreement freezing and date electric quantity freezing

◆ Measuring voltage, frequency and instantaneous values of each electrical parameters in each circuit (current/ active power/reactive power/power factor etc.)

◆ Storage 12 clearing day energy data

◆ Multiple backup with CRC for power, parameters

◆ Supporting DL/T645-1997/2007、Modbus-RTU protocols

◆ With 1～4 circuits for optional

Chapter 2 Specification & Technical Parameters

2.1 Input Voltage

Reference Voltage: 3×220V/380V   Voltage Range:0.8～1.1Un

2.2 Input Current

Measuring Current Range:

3×1.5(6)A, 3×10(40)A, 3×20(100)A, 3×50(200)A, 3×100(400)A etc.

Note: The meter should be used and incorporated with our special CTs which can be customized

2.3 Energy

Accuracy Class: Class 1

2.4 Frequency Measurement

Reference Frequency: 50Hz

2.5 Power Consumption:

Each phase voltage circuit：≤1.5W、2VA

Each phase current circuit：≤1VA

2.6 Communication

RS485/Modbus-RTU Communication Protocol

Baud Rate: 2400~19200bps (programmable). The default setting is 2400bps.

2.7 Power Supply

Power Supply: AC85~265V/ DC85～330V

2.8 Working Condition

Reference Humidity: ≤75％RH(Annual average)

Working temperature: -10℃~50℃

Storage Temperature: -40℃~70℃

Chapter 3 Dimension & Installation

3.1 Dimension (Unit: mm)
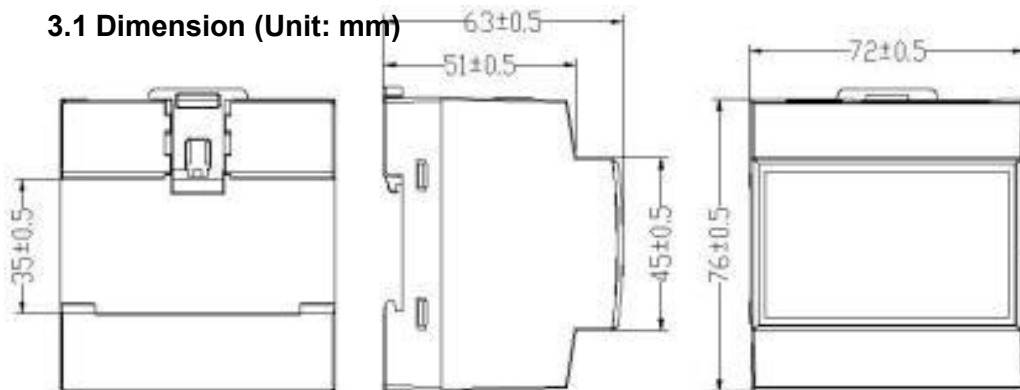
3.2 Installation Method

Installation Environment: DZS400 should be installed in a dry and dust free environment. Avoid exposing meter to excessive heat, radiation and high electrical noise sources.

Install Method: DIN rail Mounted.

Chapter 4 Terminals

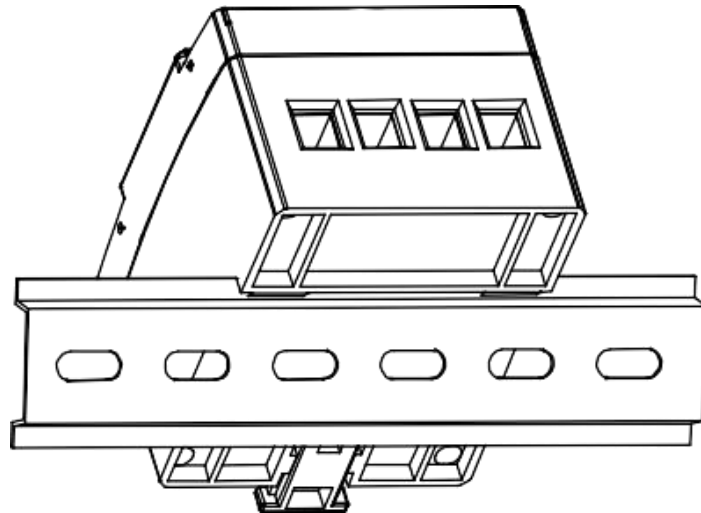| Terminal No.	Function
1, 2	Power Supply
3, 4	RS485 Communication Interface
5	Phase A Voltage
6	Phase B Voltage
7	Phase C Voltage
8	Neutral Line Voltage
9	Active Pulse Channel of 4 circuits
10, 11, 12, 13	Current Transformer Interface of 1st, 2nd, 3rd, 4th circuit (1～4 circuits optional)

Chapter 5 Typical Wiring

5.1 Active pulse channel wiring(sorted from left to right)(terminal pin 9)

1	2	3	4	5	6	7	8
1	2	1	2	3	4	3	4
Circuit	Circuit	Circuit	Citcuit	Circuit	Circuit	Circuit	Circuit
+	+	-	-	+	+	-	-
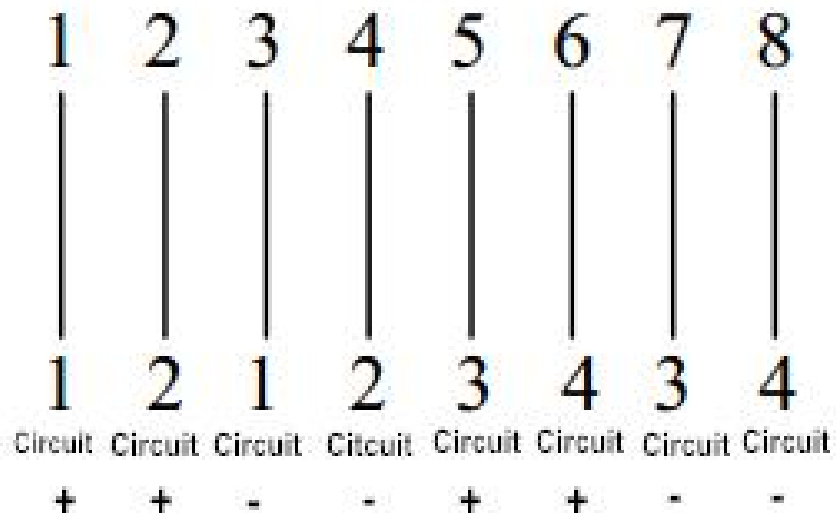
5.2 Voltage and Current Wiring Diagram

Three-phase combined transformer
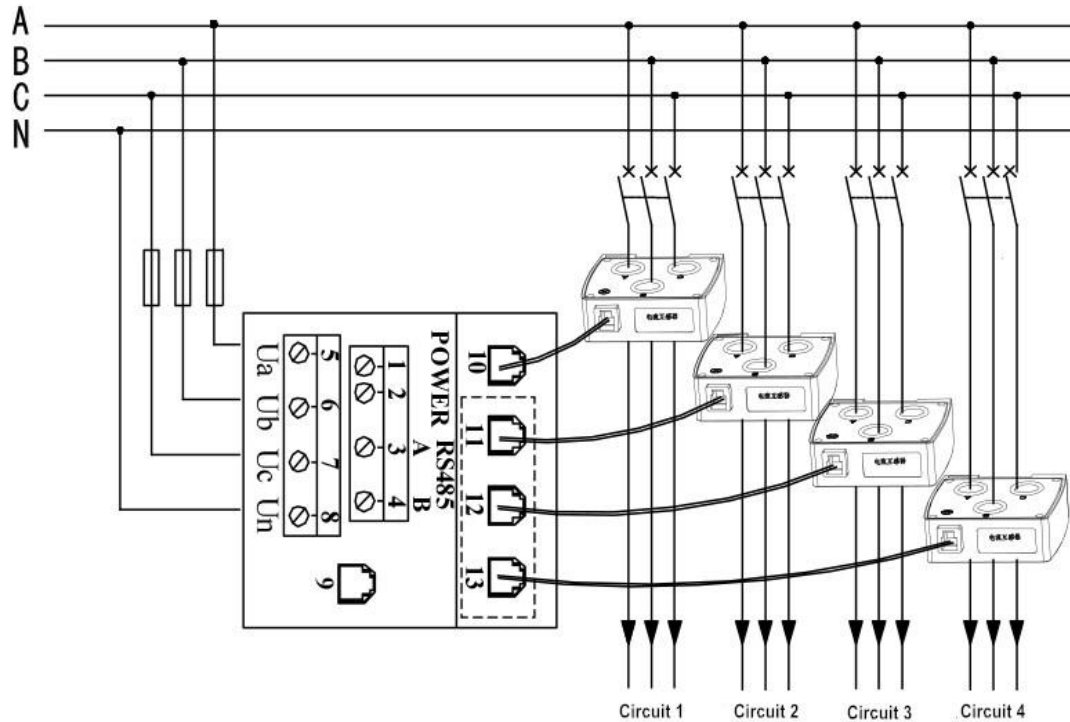
Note: Please pay attention to the direction of the current transformer.

(X) : the current flow in direction   ⊙ : the current outflow direction

The arrows are used to indicate the current direction of the transformer arrow direction to be consistent with the load direction

Chapter 6 Meter Display & Operation

6.1 Operation and Buttons

"▲" button:The display data is used for page up or the value is plus 1,

"▼" button:The display data is used for page down or the cursor moves left,

"SET" button:Enter the programming interface, the default password is 3366
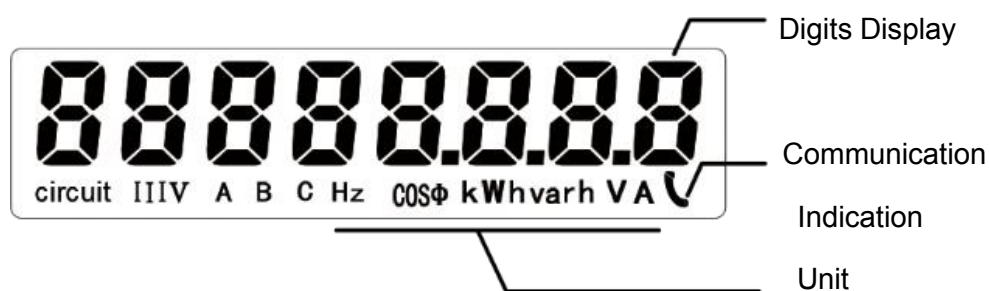
6.2 Digits and Symbols Display

Digits Display

Communication Indication

Unit

Figure 1   LCD Display Interface Reference Diagram

Figure 2   Phase B Current of 1st Circuit

Figure 3   Active Energy of 4th Circuit

序号	LCD 字符	含义	序号	LCD 字符	含义
1	PSd 33bb	仪表密码 3366	9	-rEtUrn-	退出
2	-Ad SEt-	设备地址	10	--bACY--	返回上一级
3	-Pt SEt-	电压变比	11	000001	变比数字
4	-Ct SEt-	电流变比	12	L 000001	设备地址低 6 位
5	-nAdSEt-	Modbus 地址	13	H 000000	设备地址高 6 位
6	-bd SEt-	波特率	14	---01---	回路数字
7	-rtCSEt	系统时钟	15	t 180830	系统时间
8	-EnESEt-	起始电度值	16	d 120831	系统日期

序号 Item   LCD 字符 LCD Display   含义 Description

仪表密码 Password 3366

设备地址：Meter Address

设备地址高 6 位 High 6-digit for DL/T645   设备地址低 6 位 Low 6-digit for DL/T645

电压变比：PT Ratio 电流变比：CT Ratio

Modbus 地址：Modbus Address   波特率 Baud Rate

退出 Return　返回上一级 Back

系统时钟：System Clock　系统时间：System Time　　系统日期：System Date

---01---回路字数 Circuit

6.3．Display Interface

The meter can circularly display system date/time, three phase voltage, frequency,

real-time values of each electrical parameters in each circuit(I, kW, Kvar,cosφ, kWh,

kvarh)

6.4 Parameter Setting Interface

Password Inquiry Interface

Press "SET" to enter the password inquiry interface.The default password is 3366.

Press "SET" to confirm and enter the next interface.

Meter Address (for DL/T645 communication protocol)

L xxxxxx Low 6-digits　　　　　　　H xxxxxx　High 6-digits

After setting, press "SET" to confirm and return the meter address interface.

PT Ratio Setting Interface

Press "▲" to enter the interface. Press "SET" to set the PT Ratio of each circuit.

And the circuit's number can be selected by pressing "▼"

After all settings, press "▼" again to enter "BACK" interface and press "SET" to

confirm.

CT Ratio Setting Interface

Press "▲" to enter the interface. Press "SET" to set the CT Ratio of each circuit.

And the circuit's number can be selected by pressing "▼"

The value of CT ratio should be set according to the primary current, i.e. if the CT is

100A/20mA, the value should be set as 100.

After all settings, press "▼" again to enter "BACK" interface and press "SET" to

confirm.

Modbus Address Setting Interface

Press "▲" to enter the interface. Press "SET" to set Modbus address. The default address is 01. The setting range is 01~FF.

After setting, press "SET" again to confirm.

Baud Rate Setting Interface

Press "▲" to enter the interface. Press "SET" to set the parameters.

Press "▲" to program the party bits(O, N, or E) and baud rate(1200~19200).

Press "▼" to move the cursor

After setting, press "SET" again to confirm.

System Clock Setting Interface

Press "▲" to enter the return interface. Press "SET" to set the parameters.

After setting, press "SET" again to confirm.

Press "▲" again to enter the "RETURN" interface and press "SET" to quit the setting mode.

If press "▲" continuously, it will circulate the setting interfaces.

Chapter 7 After-sales Service

Product Warranty

1. The product warranty period is one year.

2. The company is responsible for free maintenance or exchange within one-year warranty period.

3. The cost of the components and freight shall be charged for improper meter installation and/or operation.

4. Over the warranty period, part of the maintenance cost according to actual situation will be charged.

Service Guarantee

1. Product technical consulting and quality complaints will be replied within 12 hours.

2. Solutions for quality complaints will be provided within 24 hours.

3. Except statutory holidays and force majeure.

Chapter 8 Contact Us

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