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DJSF1352 Electronic DC Energy Meter

Installation Manual V1.1

Acrel Co.,Ltd.

Declaration

Acrel reserves the right to modify the product specifications herein without notification. Please consult the local agent about the latest specifications before placing a purchase order.

Manual revision log		
New version	Old version	Reason for revision
V1.1	/	Create the first edition.

Content

1. Overview

DJSF1352 type electronic DC electric energy meter adopts liquid crystal display,has RS485 function and can exchange data with microcomputer. It is suitable for power measurement and electric energy measurement of DC signal equipment such as charging piles,batteries,solar panels,etc.,and can also be used in industrial and mining enterprises,civil buildings,building automation and other modern DC power supply and distribution systems.

The product is composed of measuring unit,data processing unit,communication unit,display unit,etc. It has the functions of electric energy measurement,data processing,real-time monitoring and LCD display. This meter complies with GB/T33708-2017 static DC energy meter,GB/T29318-2012 electric vehicle off-board charging energy measurement,Q/GDW1825-2013 DC energy meter technical specification,Q/GDW364-2009 single-phase smart energy meter technical specification related technical requirements.

The DJSF1352 product is feature-rich and can meet a variety of application requirements.

The main functions are as follows:

- ★ With positive and negative active electric energy metering function,combined electric energy = positive + negative;
- ★ Voltage,current,power measurement;
- ★ Last 12 months settlement function;
- ★ It has the function of automatic conversion of calendar,timing and leap year,and has the function of time-calibration. Among them,the clock error issued by the broadcast shall not be greater than 5 minutes. If the time is not calibrated within ten minutes before and after zero o'clock,the time calibration is only allowed once a day;
- ★ There are two sets of rate periods,and the automatic conversion of the two sets of rate periods can be realized through the preset time. At least two time zones can be set for each set of rate periods throughout the year,and at least 8 periods can be set within 24 hours,with the minimum period. The interval is 15 minutes,and the time period can be set across zero;
- ★ There are infrared communication interface and RS-485 communication interface,and adopt DL/T645-2007 communication protocol,DL/T698.45 communication protocol and Modbus-RTU protocol. The communication rate of RS485 can be set to 1200bps,2400bps,4800bps,9600bps,and the modulation infrared is fixed at 1200bps.

2. Specifications and main technical parameters

2.1 Specification

- ★ Accuracy: class 1
- ★ Rated voltage (Ub): 100V,350V,500V,750V,1000V,etc.
- ★ Calibration current (In): 300A (can be set),shunt supports output 0-75mV,Hall current sensor supports output 0-20mA and 0-5V
- ★ Auxiliary power supply: supply voltage,DC12V,DC20-60V,DC9~36V or AC85V-265V optional
- ★ Pulse constant:

Rated voltage (V)	Calibration current (A)	Pulse constant (imp/kWh)
750	300	100
750	200	100
750	150	100
750	100	100
1000	300	100
1000	800	10

2.2 Technical parameter

2.2.1 Basic error

Under the rated voltage (Ub),the basic error of the electric energy meter should not exceed the error limit of the following table.

Table 1 Basic error of electric energy meter

Load current (I) variation range	Error limit
0.02In≤I<0.05In	±1.5%
0.05In≤I≤Imax	±1 .0%

2.2.2 Measuring voltage range

Table 2 Measuring voltage range

Specified range	0.4 Ub -1.1Ub(Umax<1000V)
Extended range	0.1Ub -1.15Ub(Umax<1000V)

2.2.3 Creep

When there is no current in the current line of the meter (the current line should be open during the test),and the maximum voltage is applied to the voltage line,the test output of the meter should not generate more than one pulse within the time specified Δt by the following formula.

$$\Delta t \geq \frac{k \times 10^6}{C U_{max} I_{max}}$$

In the formula：

Δt —The shortest test time of creep,the unit is minutes (min)；

k —Meter accuracy class adjustment constant. Take 600 for a Class 1 meter;

C —Meter pulse constant,expressed in pulses per kilowatt-hour (imp/kWh);

Umax —Maximum voltage,in volts (V);

Imax —Maximum current,in ampere (A);

2.2.4 Power consumption

Table 3 Power consumption

Voltage line	≤0.5VA

Current line	≤0.1VA
Auxiliary power circuit (DC power supply)	≤2VA
Auxiliary power circuit (AC power supply)	≤2W

2.2.5 Working environment conditions

Table 4 Working Environment Conditions

Working temperature range	－40℃～＋70℃
Extreme operating temperature range	－40℃～＋70℃
Storage and transportation limit temperature	－40℃～＋70℃
Relative humidity	<75%(The annual average)

2.2.6 Communication Interface

Table 5 Communication interface

Communication baud rate	RS485: 1200/2400/4800/9600,2-way RS485 is optional
Data Format	O/E/N-8-1/2,factory default E-8-1
Communication protocol	DL/T698.45 protocol,DL/T645-2007 protocol,Modbus-RTU protocol

2.2.7 Mechanical parameters

★ Dimensions: 160±0.5mm (length) 112±0.5mm (width) 58±0.5mm (thickness)

★ Weight: about 0.5kg

3. **Installation requirements**

3.1 Purpose

In order to standardize the selection of screwdriver torque and ensure the standardization of tibial screw torque,this requirement is specially formulated.

3.2 Scope of application

This requirement applies to all kinds of screwdriver processes in the workshop.

3.3 Instruments,equipment,consumables

Electric screwdriver,pneumatic screwdriver

3.4 General requirements

Table 6 General requirements

Serial number	Screw Specifications	Screw fixing	Screwdriver type	Screwdriver torque(kgf.cm)	Unscrew torque(kgf.cm)	Can’t unscrew torque(kgf.cm)
1	M6 screw	Terminal	Electric screw driver	8-12	12	6
2	M5 screw	Terminal	Electric screw driver	8-12	12	6
3	M4 screw	Terminal	Electric	6-8	8	4

			screw driver			
4	M3 screw	Terminals,lugs,pulses	Electric screw driver	4-6	6	2
5	M2.5 screw	Terminals,lugs,pulses	Electric screw driver	3-4	4	2

4.**Installation and usage**

4.1 Shape and dimension

The electric energy meter should be installed indoors. The bottom plate on which the electric energy meter is installed should be placed on a solid fire-resistant wall. The recommended installation height is about 1.8m. There is no corrosive gas in the air. The upper part of the meter has hook screw holes with M4 hook screws,and the lower part of the meter has 2 mounting holes to be fixed on the wiring board with M5×35 self-tapping screws (as shown in the figure below). (unit:mm)

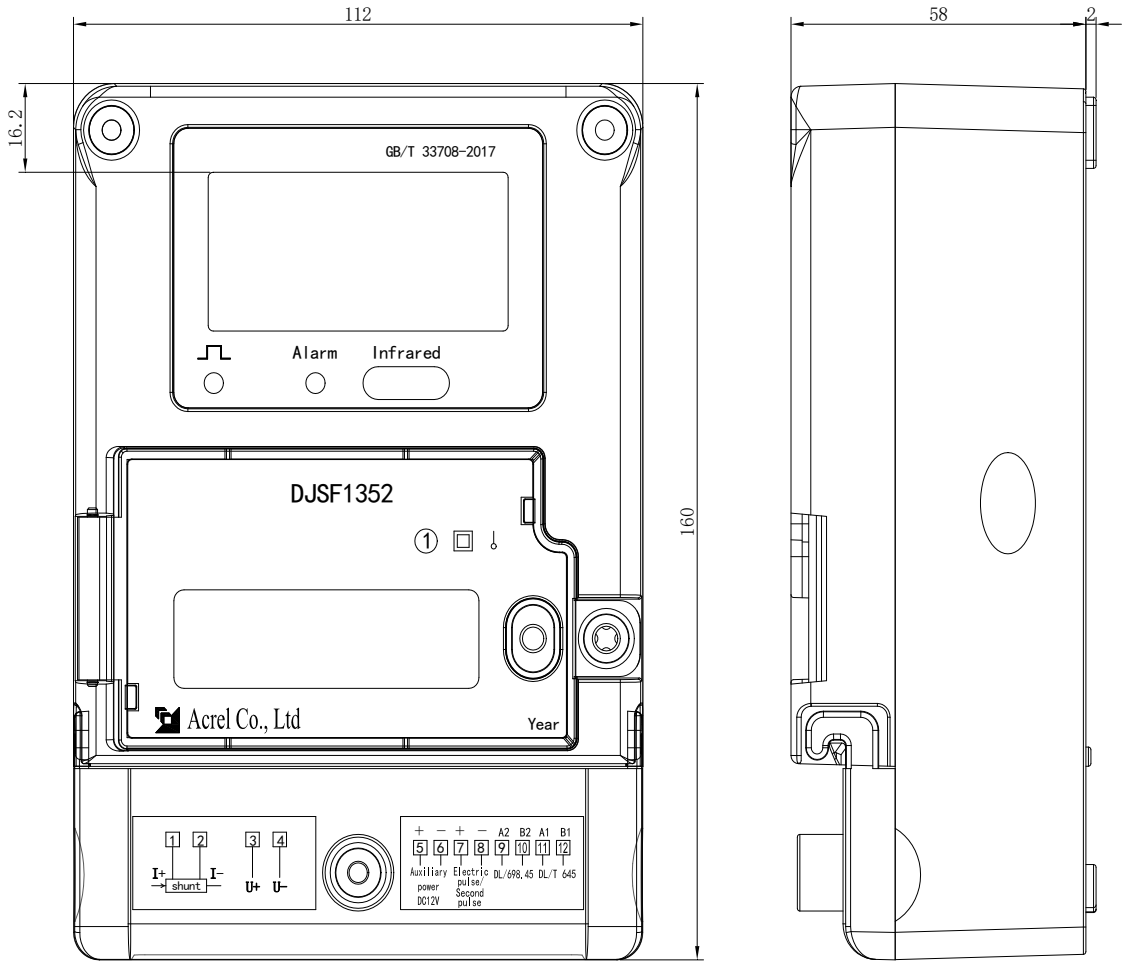


Figure 1 Shape and Dimension

4.2 Terminal wiring diagram

The electric energy meter should be wired according to the wiring diagram on the terminal box,preferably with copper wire or copper terminal.

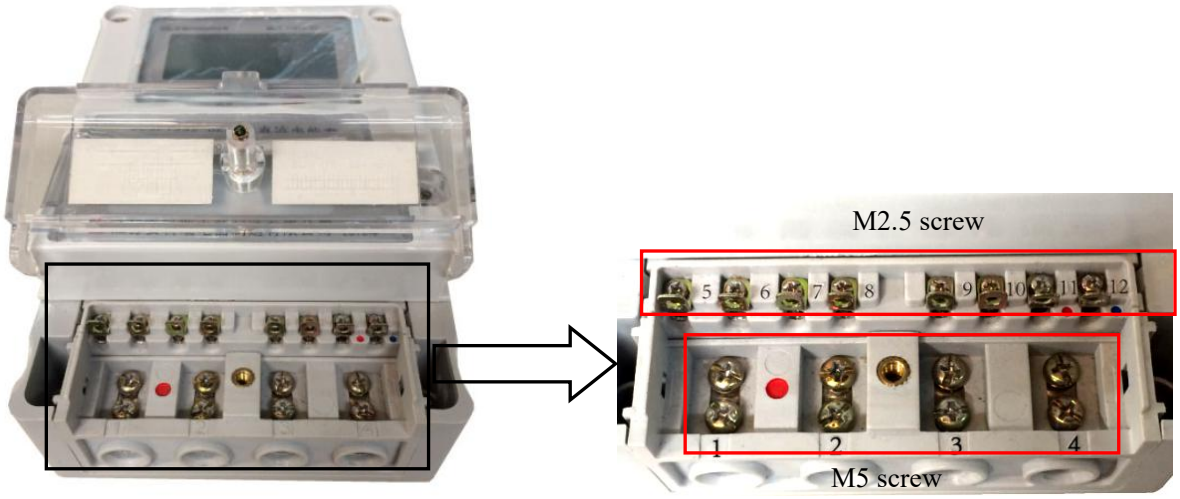
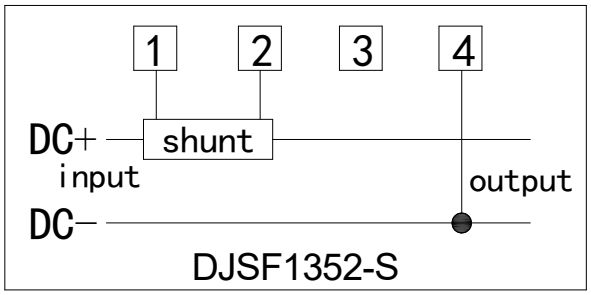


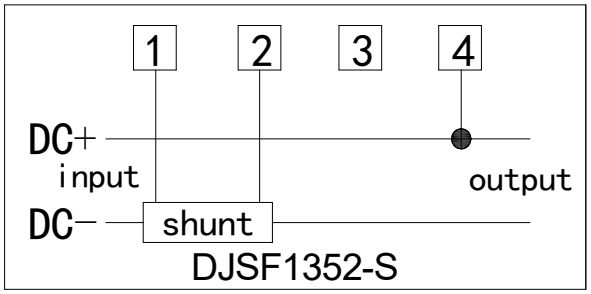
Figure 2 Terminal wiring diagram

The current signal sampling line must use shielded twisted pair.

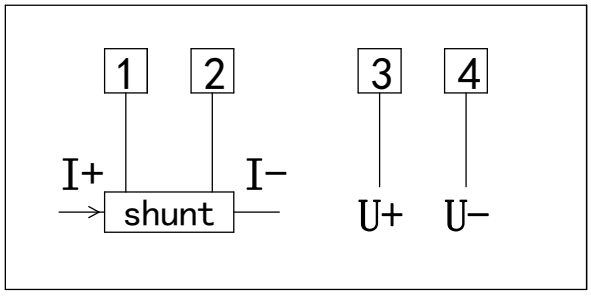
The wiring diagram of the external shunt is shown in the following figure:



Three-wire common positive connection



Three-wire common negative connection



Four-wire connection

Figure 3 Shunt wiring diagram

The wiring diagram of the external Hall current sensor is shown in the following figure:

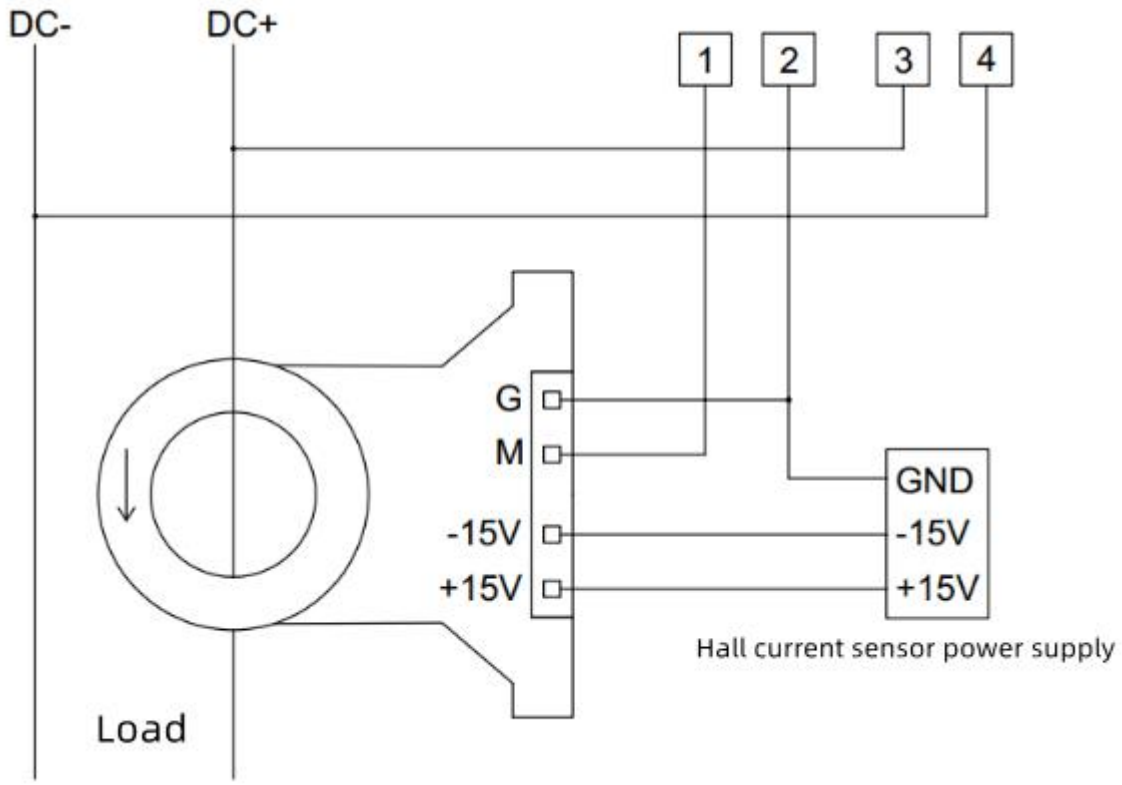


Figure 4 Hall current sensor wiring diagram

Other terminal wiring diagrams are shown in the following figure:

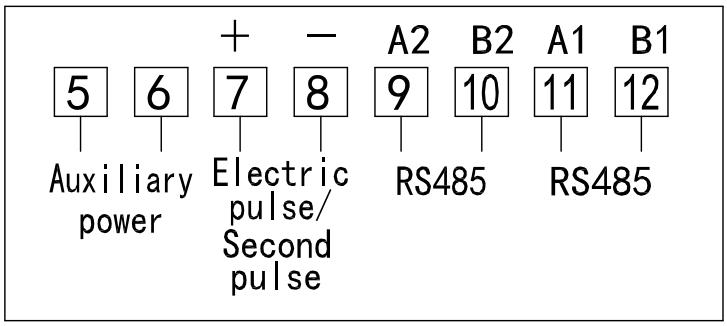


Figure 5 Other terminal wiring diagram

Note: When the voltage and current signals are all positive or negative,the power will be expressed as positive,and the positive energy will be measured; when the voltage and current signals are positive and negative,the power will be expressed as negative,and the reverse energy will be measured.

The RS485 communication port of the meter requires a shielded twisted pair connection,and the layout of the entire network should be considered when wiring. Factors such as the length and direction of the communication cable,the location of the host computer,the matching resistance at the end of the network,the communication converter,the scalability of the network,the coverage of the network,and the electromagnetic interference of the environment must be comprehensively considered.

1. The wiring project should be constructed in strict accordance with the requirements;

2. For meters that do not need communication temporarily,connect them to the RS-485 network for easy diagnosis and testing;

3. When connecting the RS-485 cable,try to use two-color shielded twisted pair cables. The "A" terminal of the 485 communication port is connected to the same color,and the "B" terminal is connected to another color;

4. The length of the RS-485 bus (from the communication port of the host computer to the communication port of the meter terminal connected to the end) should not exceed 1200 meters.

4.3 Precautions

The electric meter should be installed in a place that is firm,fire-resistant and not easy to vibrate,and the installed electric meter should be vertical and not inclined. Do not install the meter without permission,and connect it correctly according to the wiring diagram,otherwise the meter may be burned out due to excessive voltage. The wiring type should pay attention to the ignition and burnout caused by poor contact and too thin incoming and outgoing wires. Pay attention to the meter range and do not exceed its range,otherwise the meter may be burned out due to excessive current load.

5. Display and operation

5.1 Display method

The electric energy meter adopts LCD to display information. The visible size of the LCD screen is 60mm (length) x 30mm (width),with black characters on a gray background.

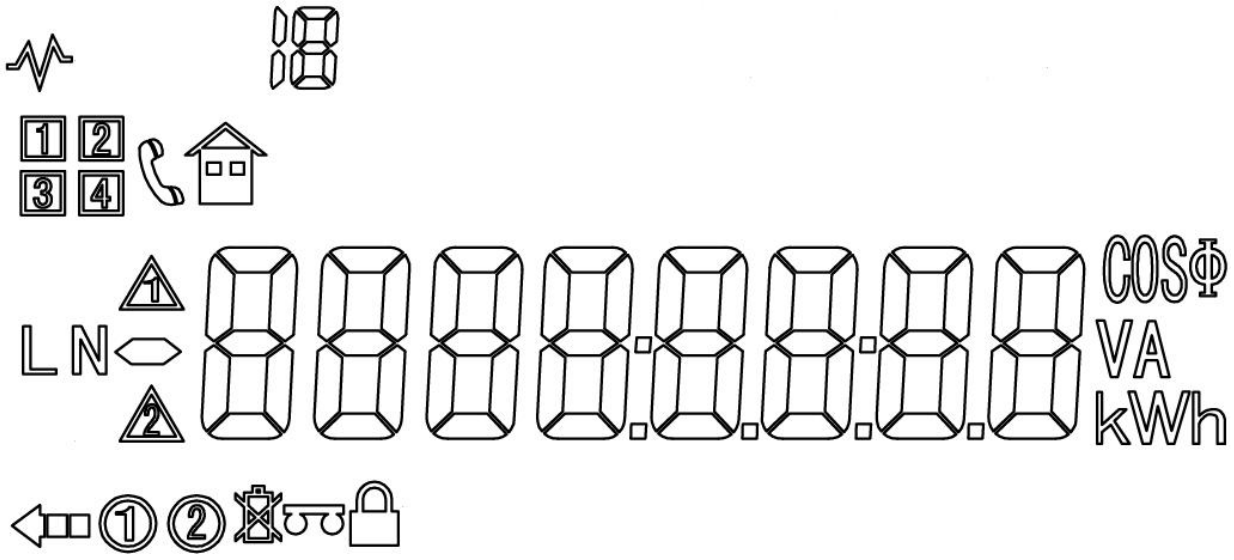


Figure 6 LCD display interface

5.2 Display function

★ Using liquid crystal display,the display mode is divided into two types: automatic cycle display and button display.

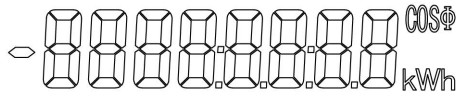
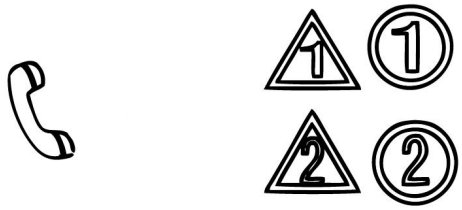
★ The display has a backlight function,the backlight is white,and it can be triggered by a button to light up. If there is a misoperation,it will automatically turn off after two automatic cycle displays.

★ It can display information such as accumulated electricity,voltage,current,power,time and so on.

★ The power display is 8 digits,the factory default is 3 decimal places,the unit of measurement is kWh,and the power can be displayed as 99999.999kWh. The high bit is not displayed after it is exceeded. It will be cleared when the value exceeds 4294967.295kWh.

★ LCD display information used,each graphic text description:

Table 7 Display Graphical Description

Serial number	LCD Graphics	Explanation
1		Data display and corresponding unit symbols
2		1) ①② represents the 1st and 2nd set of date segment tables 2) ①② represents the 1st and 2nd year time zone table 3) 485 communication

5.3 Pulse indicator

Pulse indicator: red light,usually off,flashing when measuring electric energy

6. **Communication**

6.1 Communication Interface

The meter is equipped with an R485 communication interface and an infrared communication interface.

6.2 Data read and write

Through the 485 communication interface,parameter setting and reading data can be completed. Compatible with DL/T645-2007 protocol and Modbus-RTU protocol. The functions of each protocol are as follows:

DL/T698.45 protocol: The meter supports DLT698.45 protocol,and the meter number defaults to the last 12 digits of the barcode. The protocol supports the reading of voltage,current,power,forward and reverse and combined power,and the reading of multi-rate power.

DL/T645-2007 protocol: can read real-time electrical parameters (voltage,current,power),current active energy and tariff energy,settlement energy in December,and event record data. Tariff and display settings,meter reset function. Please refer to the corresponding agreement for details.

Modbus-RTU protocol: can read real-time electrical parameters (voltage,current,power),current active energy and tariff energy,can set tariff,and reset the meter. Please refer to the corresponding agreement for details.

6.3 Communication parameter setting

The communication address,baud rate,and check digit can only be set through the RS485 interface.

Communication address: The default communication address of DL/T645-2007 protocol is 000000000001 (12-bit BCD code),and the default address of Modbus-RTU protocol is 01.

Baud rate: 1200/2400/4800/9600 can be set,parity bit (can be set): odd/even/none.

Note: The default factory setting is 2400bps,even parity. If the inspection bit is otherwise required,please refer to the actual product.

6.4 Modbus communication address table

When using Modbus protocol for communication,the function code of the read data command is 03H,and the function code of the write data command is 10H. The specific register address table is as follows:

Table 8 Modbus communication address table

Address	Name	Read and write properties	Defaults	Remark
0000	Total active energy[1]	R		The energy data are all shaped,with 2 decimal places reserved.
0001	Total active energy[0]	R		
0002	Total active sharp energy[1]	R		
0003	Total active sharp energy[0]	R		
0004	Total active peak energy[1]	R		
0005	Totall active peak energy[0]	R		
0006	Total active flat energy [1]	R		
0007	Total active flat energy [0]	R		
0008	Total active valley energy [1]	R		
0009	Total active valley energy [0]	R		
000A	Total positive active energy [1]	R		
000B	Total positive active energy [0]	R		
000C	Total positive active sharp energy [1]	R		
000D	Total positive active sharp energy [0]	R		
000E	Total positive active peak energy [1]	R		
000F	Total positive active peak energy [0]	R		
0010	Total positive active flat energy [1]	R		
0011	Total positive active flat energy [0]	R		
0012	Total positive active valley energy [1]	R		
0013	Total positive active valley energy [0]	R		
0014	Total negative active energy [1]	R		
0015	Total negative active energy [0]	R		
0016	Total negative active sharp energy [1]	R		
0017	Total negative active sharp energy [0]	R		
0018	Total negative active peak energy [1]	R		

0019	Total negative active peak energy [0]	R		
001A	Total negative active flat energy [1]	R		
001B	Total negative active flat energy [0]	R		
001C	Total negative active valley energy [1]	R		
001D	Total negative active valley energy [0]	R		
001E	Voltage	R		Integer,1 decimal place
001F	Current	R		Integer,1 decimal place
0020	Active power[1]	R		grouped together to form a signed number.
0021	Active power[0]	R		
0022	Alarm bit	R		Bit0: high voltage alarm; Bit1: low voltage alarm; Bit2: high current alarm; Bit3: low current alarm;
0023				
0024				
0025				
0026	Minute second	R/W		High byte:minute; Low byte:second
0027	Day hour	R/W		
0028	Year month	R/W		
0029	Password	R/W		
002A	Communication address,communication baud rate	R/W	0x0101	Baud rate: 0-1200,1-2400,2-4800,3-9600
002B	Parity bit,stop bit	R/W	0x0200	Parity bit: 0-no parity,1-odd parity,2-even parity, stop bit: 0-1 stop bit,1-2 stop bit
002C	PT ratio	R/W	1	
002D	CT ratio	R/W	1	
002E	Pulse constant EC	R	100	
002F	LCD Backlight Setting	R/W	0	Default: Automatic
0030	Rated voltage	R/W	7500	1 decimal point
0031	Rated current	R/W	2000	1 decimal point
0032	Alarm enable bit setting	R/W	0	Bit0: high voltage alarm; Bit1: low voltage alarm; Bit2: high current alarm; Bit3: low current alarm;
0033	High Voltage Alarm Threshold	R/W	1200	Default: 120%

0034	High voltage alarm delay time	R/W	500	Default: 5s
0035	Low voltage alarm threshold	R/W	800	Default: 80%
0036	Low voltage alarm delay time	R/W	500	Default: 5s
0037	High Current Alarm Threshold	R/W	2000	Default: 200%
0038	High current alarm delay time	R/W	500	Default: 5s
0039	Low Current Alarm Threshold	R/W	500	Default: 5s
003A	Low current alarm delay time	R/W	500	Default: 5s
003B				
003C				
003D				
003E				
003F				
0040				
0041				
0042				
0043				
0044				
0045				
0046				
0047				
0048				
0049				
004A				
004B				
004C	Additional function	R/W		Bit0-Bit1: 0-3,the number of decimal places; Bit2: 0-Modbus,1-DLT645; (self-adaptive) Bit3: 0- no multi-rate,1-multi-rate;
004D	Meter reading day	R/W		Day-hour
004E		R/W		
004F		R/W		
0050		R/W		
0051		R/W		
0052		R/W		

0053		R/W		
0054		R/W		
0055	The 1st time zone timetable number / the 1st time zone start date: day	R/W		Time zone table
0056	The 1st time zone start date: month / the 2nd time zone time slot table number	R/W		
0057	The 2nd time zone start date: day / the 2nd time zone start date: month	R/W		
0058	The 3rd time zone timetable number / the 3rd time zone start date: day	R/W		
0059	The 3rd time zone start date: month / the 4th time zone time slot table number	R/W		
005A	The 4th time zone start date: day / the 4th time zone start date: month	R/W		
005B	The 1st period tariff number / the 1st period start: minute	R/W		The first set of timetables
005C	The 1st start period: hour / the 2nd period tariff number	R/W		
005D	The 2nd start period: minute / the 2nd start period: hour	R/W		
005E	The 3rd Period Tariff Number / the 3rd Start Period : Minute	R/W		
005F	The 3rd Start Period: hour / the 4th period tariff number	R/W		
0060	The 4th start period: minute / the 4th start period: hour	R/W		
0061	The 5th Period Tariff Number / the 5th Start Period : Minute	R/W		
0062	The 5th Start Period: hour / the 6th period tariff number	R/W		
0063	The 6th start period: minute / the 6th start period: hour	R/W		
0064	The 7th Period Tariff Number / the 7th Start Period : Minute	R/W		
0065	The 7th Start Period: hour / the 8th	R/W		

	period tariff number			
0066	The 8th start period: minute / the 8th start period: hour	R/W		
0067	The 9th Period Tariff Number / the 9th Start Period : Minute	R/W		
0068	The 9th Start Period: hour / the 10th period tariff number	R/W		
0069	The 10th start period: minute / the 10th start period: hour	R/W		
006A	The 11th Period Tariff Number / the 11th Start Period : Minute	R/W		
006B	The 11th Start Period: hour / the 12th period tariff number	R/W		
006C	The 12th start period: minute / the 12th start period: hour	R/W		
006D	The 13th Period Tariff Number / the 13th Start Period : Minute	R/W		
006E	The 13th Start Period: hour / the 14th period tariff number	R/W		
006F	The 14th start period: minute / the 14th start period: hour	R/W		
0070	The 1st period tariff number / the 1st period start: minute	R/W		The second set of timetables
0071	The 1st start period: hour / the 2nd period tariff number	R/W		
0072	The 2nd start period: minute / the 2nd start period: hour	R/W		
0073	The 3rd Period Tariff Number / the 3rd Start Period : Minute	R/W		
0074	The 3rd Start Period: hour / the 4th period tariff number	R/W		
0075	The 4th start period: minute / the 4th start period: hour	R/W		
0076	The 5th Period Tariff Number / the 5th Start Period : Minute	R/W		
0077	The 5th Start Period: hour / the 6th period tariff number	R/W		

0078	The 6th start period: minute / the 6th start period: hour	R/W		
0079	The 7th Period Tariff Number / the 7th Start Period : Minute	R/W		
007A	The 7th Start Period: hour / the 8th period tariff number	R/W		
007B	The 8th start period: minute / the 8th start period: hour	R/W		
007C	The 9th Period Tariff Number / the 9th Start Period : Minute	R/W		
007D	The 9th Start Period: hour / the 10th period tariff number	R/W		
007E	The 10th start period: minute / the 10th start period: hour	R/W		
007F	The 11th Period Tariff Number / the 11th Start Period : Minute	R/W		
0080	The 11th Start Period: hour / the 12th period tariff number	R/W		
0081	The 12th start period: minute / the 12th start period: hour	R/W		
0082	The 13th Period Tariff Number / the 13th Start Period : Minute	R/W		
0083	The 13th Start Period: hour / the 14th period tariff number	R/W		
0084	The 14th start period: minute / the 14th start period: hour	R/W		
0085				
0086				
0087	Table number [0]	R/W		
0088	Table number [1]	R/W		
0089	Table number [2]	R/W		
008A	Table number [3]	R/W		
008B	Table number [4]	R/W		
008C	Table number [5]	R/W		

6.5 DL/T645-2007 Statute Data Identification

For the specific message frame format and communication requirements of the DL/T645-2007 power regulation,please refer to the relevant documents. The specific data fields supported by the meter are as follows:

Table 9 DL/T645-2007 power regulation data fields

Data identification				Data length (byte)	Data item name	Remark
DI3	DI2	DI1	DI0			
00	00	00	00	4	Combined total active energy	The current electric energy data,the data format is compressed BCD code,the unit is kWh,2 decimal places,the maximum electric energy that can be transmitted is 999999.99kWh,and it will start to recover from 0 after exceeding it,and the stored electric energy will be cleared to 0 after the fourth measurement from 0 to 294967.29.
00	00	01	00	4	Combined total active sharp energy	
00	00	02	00	4	Combined total active peak energy	
00	00	03	00	4	Combined total active flat energy	
00	00	04	00	4	Combined total active valley energy	
00	00	FF	00	20	Combined active power block	
00	01	00	00	4	Positive total active energy	
00	01	01	00	4	Positive total active sharp energy	
00	01	02	00	4	Positive total active peak energy	
00	01	03	00	4	Positive total active flat energy	
00	01	04	00	4	Positive total active valley energy	
00	01	FF	00	20	Positive active power block	
00	02	00	00	4	Negative total active energy	
00	02	01	00	4	Negative total active sharp energy	
00	02	02	00	4	Negative total active peak energy	
00	02	03	00	4	Negative total active flat energy	
00	02	04	00	4	Negative total active valley energy	
00	02	FF	00	20	Negative active power block	
00	00	00	01	4	Combined total active energy in the previous month	Electricity data for last January
00	00	01	01	4	Combined total active sharp energy in the previous month	
00	00	02	01	4	Combined total active peak energy in the previous month	
00	00	03	01	4	Combined total active flat energy in the previous month	
00	00	04	01	4	Combined total active valley energy in the previous month	
00	00	FF	01	20	Combined active power block in the previous month	
00	01	00	01	4	Positive total active energy in the previous month	
00	01	01	01	4	Positive total active sharp energy in	

					the previous month	
00	01	02	01	4	Positive total active peak energy in the previous month	
00	01	03	01	4	Positive total active flat energy in the previous month	
00	01	04	01	4	Positive total active valley energy in the previous month	
00	01	FF	01	20	Positive active power block in the previous month	
00	02	00	01	4	Negative total active energy in the previous month	
00	02	01	01	4	Negative total active sharp energy in the previous month	
00	02	02	01	4	Negative total active peak energy in the previous month	
00	02	03	01	4	Negative total active flat energy in the previous month	
00	02	04	01	4	Negative total active valley energy in the previous month	
00	02	FF	01	20	Negative active power block in the previous month	
Refer to the above format						Electricity data for last February
Refer to the above format						Electricity data for last March
Refer to the above format						Electricity data for last April
Refer to the above format						Electricity data for last May
Refer to the above format						Electricity data for last June
02	01	01	00	2	A-phase voltage	
02	01	FF	00	6	Voltage block	
02	02	01	00	3	A-phase current	
02	02	FF	00	9	Current block	
02	03	00	00	3	Active power	
02	03	01	00	3	A-phase active power	
02	03	FF	00		Active power block	
02	06	00	00		Total power factor	
02	06	01	00		A-phase power factor	
02	80	00	02		Grid frequency	
04	00	04	01	6	Communication address	

04	00	04	02	6	Table number	
04	00	01	01	4	Date	
04	00	01	02	3	Time	

Data identification				Data length (byte)	Data item name	Remark
DI3	DI2	DI1	DI0			
00	D0	00	00	4	Combined total active energy	Current power data,data format is hexadecimal,unit kWh,3 decimals,the maximum power that can be transmitted is 4294967.295kWh,and it will be cleared to 0 if it exceeds.
00	D0	01	00	4	Combined total active sharp energy	
00	D0	02	00	4	Combined total active peak energy	
00	D0	03	00	4	Combined total active flat energy	
00	D0	04	00	4	Combined total active valley energy	
00	D0	FF	00	20	Combined Active Energy Data Block	
00	D1	00	00	4	Positive total active energy	
00	D1	01	00	4	Positive total active sharp energy	
00	D1	02	00	4	Positive total active peak energy	
00	D1	03	00	4	Positive total active flat energy	
00	D1	04	00	4	Positive total active valley energy	
00	D1	FF	00	20	Positive Active Energy Data Block	
00	D2	00	00	4	Negative total active energy	
00	D2	01	00	4	Negative total active sharp energy	
00	D2	02	00	4	Negative total active peak energy	
00	D2	03	00	4	Negative total active flat energy	
00	D2	04	00	4	Negative total active valley energy	
00	D2	FF	00	20	Negative Active Energy Data Block	

6.6 DL/T698.45 protocol

The DJSF1352 meter supports the following object identifiers.

Object ID OI	Interface IC	Object name	Instance object properties and method definitions
0000	1	Combined active energy	Electric energy ：：=double-long; unit: kWh,conversion: -2
0010	1	Positive active energy	Electric energy ：：=double-long-unsigned; unit: kWh,conversion: -2
0020	1	Negative active energy	Electric energy ：：=double-long-unsigned; unit: kWh,conversion: -2
2000	3	Voltage	Data type: long-unsigned,unit: V,conversion: -1
2001	3	Current	Data type: double-long,unit: A conversion: -3

2004	4	Active power	Data type: double-long,unit: W,conversion: -1

7. **Precautions for storage and transportation**

①When transporting the electric energy meter,it is forbidden to subject the electric energy meter to severe impact.

②This product is an electronic device,so try to avoid the impact and bumping of heavy objects when handling.

③The ambient temperature of the storage location should be -40℃～+70℃,and the relative humidity should not exceed 75%.

④The meter should be stored in the warehouse in the original packaging,and the stacking height should not exceed 5 boxes. If the appearance of the unpacked electric meter is found to be damaged,please do not install or power on the electric meter; the stacking height of a single meter should not exceed 5 blocks,and the unpacked electric meter should not be stored.

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