

DDSF1352 单相电子式复费率电能
表

**DDSF1352 Single Phase Electronic
Multi-rate Watt-hour Meter**

安装使用说明书 V1.2

Installation and Use Manual V1.2

安科瑞电气股份有限公司
Acrel Co., Ltd.

目 录 Contents

1 概述 Overview	1
2 产品规格 Product Specifications	1
3 主要功能 Main Function	1
4 技术参数 Technical Data	2
5 外形尺寸 Dimensions (单位 Unit: mm)	4
8 通信说明 Communication Instruction	10

1 概述 Overview

DDSF1352 单相电子式复费率电能表主要用于计量低压网络的单相有功电能，并可选配 RS485 通讯功能，方便用户进行用电监测、集抄和管理。产品具有精度高、体积小、安装方便等优点。可灵活安装于配电箱内，实现对不同区域和不同负荷的电能计量，统计和分析。DDSF1352 电能表可同时进行电压、电流、功率等电量的测量，以及复费率电能计量统计。

DDSF1352 single phase electronic multi-rate watt-hour meter is mainly used to meter the single phase active watt-hour energy of the low-voltage network with optional RS485 communication function for the convenience of users to conduct the monitoring, data collection and recording and management of energy consumption. The product has the advantages of high precision, compact size, easy installation. It can be flexibly installed in the distribution box to realize watt-hour metering, statistics and analysis for different regions and different loads. DDSF1352 watt-hour meter can measure the voltage, current and power simultaneously as well as multi-rate watt-hour metering statistics.

2 产品规格 Product Specifications

型号 Model	精度等级 Precision grade	额定电压 Rated voltage (V)	电流规格 Current spec. (A)	脉冲常数 Pulse constant (imp/kWh)
DDSF13 52	1 级 1 Grade	220V	1.5 (6)	12800
			5 (20)	3200
			10 (40)	1600
			20 (80)	800

3 主要功能 Main Function

功能 Function	功能说明 Description	功能配置 Configuration
电能计量 Watt-hour metering	有功电能计量（反向计入正向存储） Active watt-hour metering (back current metering, storage as forward current)	■
电量测量 Electricity measurement	U、I、P、Q、S、PF、F	■
LCD 显示 LCD	8 位段式 LCD 显示 8-digit section LCD display	■

display		
按键编程 Button programming	4 按键可编程通信、变比等参数 Four buttons for programming parameters such as communication data, transformation ratio etc.	■
脉冲输出 Pulse output	有功脉冲输出、时钟脉冲输出 Active energy pulse output, clock pulse output	■
复费率及 附带功能 Multi-rate and additional function	支持 4 个时区、2 个时段表 14 个日时段、4 个费率 Supports 4 time zones and 2 time period tables 14 day periods, 4 rates	□
	日期、时间 Date, time	□
通讯 Communication	RS485 接口, 同时支持 Modbus、DL/T 645-07、DL/T 645-97 DL/T 645-07,DL/T 645-97 RS485 interface and supports Modbus, DL/T 645-07,DL/T 645-97	□

(■: 标配 Standard; □: 可选 Optional)

4 技术参数 Technical Data

4.1 电气特性 Electric Characteristics

电压输入 Voltage input	额定电压 Rated voltage	220V	
	参比频率 Reference frequency	50Hz	
	功耗 Power consumption	<5VA	
电流输入 Current input	输入电流 Input current	1.5(6)A, 5(20)A, 10(40)A, 20(80)A	
	起动电流 Start current	直接接入 Direct connection	0.004Ib
		经 CT 接入 Connection via CT	0.002Ib

	功耗 Power consumption	<4VA (最大电流) <4VA (Max Current)
测量性能 Measuring performance	符合标准 Compliance	GB/T 17215.321-2008 GB/T 15284-2002
	测量精度 Measuring precision	1.0 级 1.0 grade
时钟精度 Clock precision		误差≤0.5s/d Error≤0.5s/d
脉冲 Pulse	脉冲宽度 Pulse width	80ms±20ms
	脉冲常数 Pulse constant	12800imp/kWh, 3200imp/kWh, 1600imp/kWh, 800imp/kWh (与基本电流对应) 12800imp/kWh, 3200imp/kWh, 1600imp/kWh, 800imp/kWh (corresponding to basic current)
通信 Communications	接口 Interface	RS485(A+、B-)
	介质 Media	屏蔽双绞线 STP
	协议 Protocol	MODBUS-RTU, DL/T 645-07, DL/T 645-97

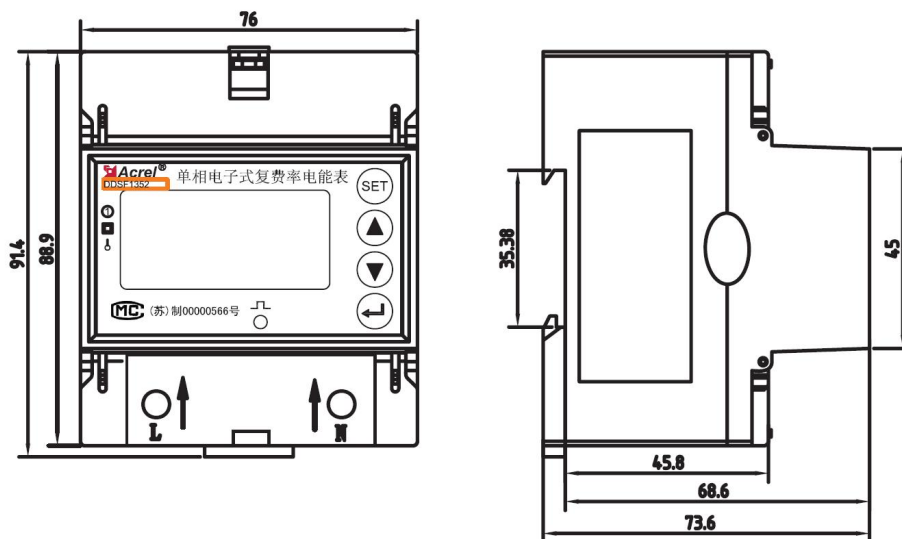
4.2 机械特性 Mechanical Characteristics

外形尺寸 Dimensions	长×宽×高 L×W×H	76mm×89mm×74mm
最大接线能力 Max connection capacity	柔性电缆 Flexible cable	16mm ²

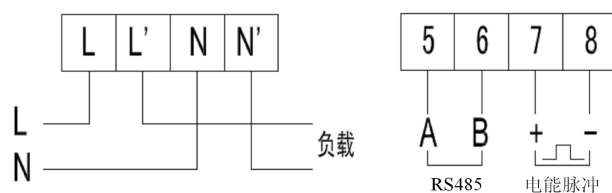
4.3 环境条件 Environmental Conditions

温度范围 Temperature range	工作温度 Operating temperature	-20℃~60℃
	存储温度 Storage temperature	-25℃~70℃
湿度 Humidity		≤95% (无凝露) ≤95%(Non-condensing)
海拔 Altitude		<2000m

5 外形尺寸 Dimensions (单位 Unit: mm)

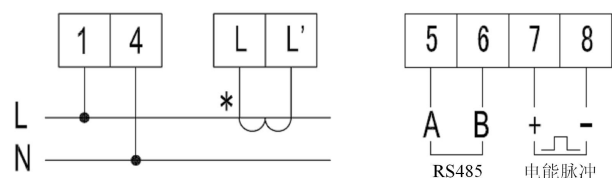


6 接线与安装 Connection and Installation



单相直接接入 Single Phase Direct Connection

负载 Load 电能脉冲 Electric pulse

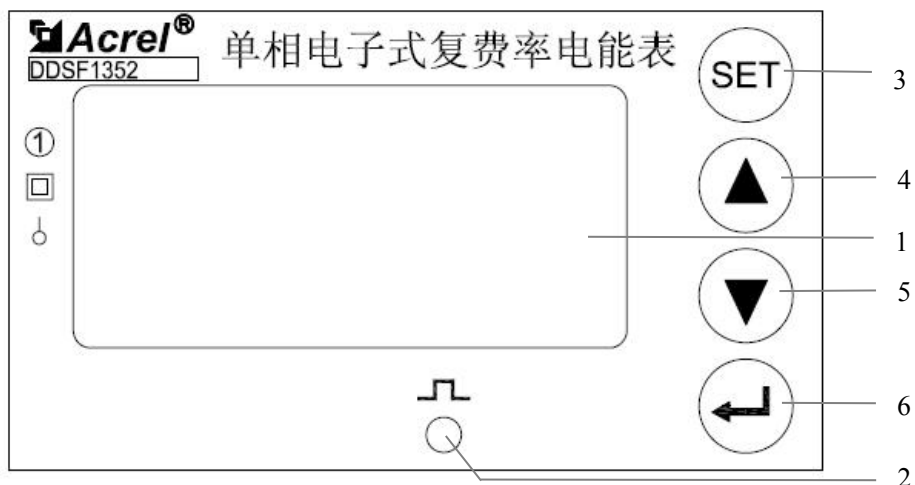


单相经 CT 接入 Single Phase Connection via CT

注：7、8 为时钟与有功脉冲复用端子，默认为有功脉冲输出。Note: 7,8 refer to clock and active energy pulse multi-plexing terminal. The default is active energy pulse output.

7 操作与显示 Operation and Display

7.1 面板格式 Panel Form



面板说明 Panel Description

编号 No.	名称 Name	状态指示 Status Indication	功能说明 Function Description
1	LCD		液晶显示 LCD display
2	脉冲 Pulse	指示灯点亮 Indicator lamp on	电能脉冲指示 Energy pulse indication
3	按键 Button	SET 键 SET button	进入/退出菜单 Entry/Exit menu
4	按键 Button	地址波特率类 向上键 Address&Baud rate Up button	查看界面中查看地址波特 率 View address and Baud rate in the view interface 编程界面中左移及闪烁移 位 Move left and flash shift in the programming interface
5	按键 Button	电参量类 向下键 Electric parameters Down button	查看界面中查看电参量 View electric parameters in the view interface 编程界面中增加数值 Add value in the programming interface
6	按键 Button	电能类 编程确定键 Watt-hour Programming confirmation button	查看界面中查看电能 View watt-hour in the view interface 编程界面中确定保存设置 Confirm the saved setting in the the programming interface

7.2 显示界面 Display Interface

上电后显示总用电量。可通过三类查看键实现翻屏显示。各类显示界面顺序说明如下：

When power on, the meter shows the total watt-hour. Three view buttons can be used to realize scroll display. The display interface sequence are described as follows:



: 波特率、通信地址/表号、软件版本号、全显检测、日期、时间、通讯协议。



: Baud rate, communication address/meter no., software version, full display testing, date, time, communication protocol.



: 频率、电流、有功功率、无功功率、视在功率、功率因数、电压。



: Frequency, current, active power, reactive power, apparent power, power factor, voltage.



: 正向有功总用电量、反向有功总用电量、尖用电量、峰用电量、平用电量、谷用电量。



: Total positive active power consumption, total reverse active power consumption, peak power consumption, peak power consumption, average power consumption, and valley power consumption.

显示界面举例展示：

Examples of display interfaces:

<p>总 用电量</p> <p>000123.45kWh</p> <p>初始界面显示总用电量 123.45kWh</p> <p>Initial interface shows total watt-hour 123.45kWh</p>

峰
用电量

000100.45kWh

峰用电量 100.45kWh

Peak watt-hour 100.45kWh

B- 9600

波特率 9600 Baud rate

A- 001

设置 MODBUS-RTU 协议显示通讯地址 001

Set MODBUS-RTU protocol to show communication address 001

表号

L 000001

设置 DL/T645 规约协议显示表号 000001

Set DL/T645 protocol to show meter number 000001

时间

14.07.08

日期: 2014 年 7 月 8 日

Date: July 8, 2014

P-Modbus

MODBUS-RTU 协议 MODBUS-RTU protocol
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> P-645-07 </div> DL/T645-07 规约 DL/T645-07 protocol
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> U 220.5V </div> 电压 220.5V Voltage 220.5V
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> I 12.56A </div> 电流 12.56A Current 12.56A
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> 0000 </div> 密码输入界面，向上键移位，向下键增加数值 Password input interface, up button for shift,down button for value increase





注：以上只是显示界面的一部分，其他界面显示模式与上图类似，可根据界面中显示的信息来判断显示含义。







Note: the above only shows a part of the display interfaces. Other interface display

7.3 编程界面 Programming Interface

在测量显示菜单中的任一显示项下，按  显示“0000”，提示输入密码后再按  ，

若密码输入错误，则返回初始界面；若密码输入正确，则可进行参数设置。设置完成后按

 进入“SAvE”界面，再按  出现“YES”、“no”选项，“YES”下按  则保存后退出，“no”下按  则不保存直接退出。

Under any display item of the measurement display menu, press  to show 0000. Enter password upon notice, press  .. If the password entry is wrong, you will return to the initial interface; if the password entry is right, you can go on setting parameters. After the setting is done, press  to enter SAvE interface. Then press  to show options of “YES” and “no”. Press  under YES, then the setting is saved before exiting; press  under “no”, then you will exit without saving the setting.

7.3.1 可设置数据项 Settable Data Item

序号 No.	一级菜单 Menu		二级菜单 Submenu		
	符号 Symbol	含义 Meaning	符号 Symbol	含义 Meaning	范围 Range
1	bUS	通讯设置 Communication setting	Addr	通讯地址设置 Communication address setting	1-247
			bAUd	波特率选择 Baud rate setting	9600、4800、2400、1200
			MOD-645	协议切换 Protocol switching	Modbus、DL/T645
2	SyS	系统设置 System setting	CodE	密码设置 Password setting	1-9999
			PULS-oUt	有功脉冲和时钟脉冲切换 Active energy pulse and clock pulse	CLK:电能脉冲 E:时钟脉冲 CLK: energy pulse

				switching	E: clock pulse
			EF-E	复费率选择 Multi-rate selection	EF:复费率 EF: multi-rate E:非复费率 E: not multi-rate
3	In.	变比设置 Transformation ratio setting	Ct	电流变比 Current transformation ratio	1-99

8 通信说明 Communication Instruction

8.1 通信协议 Communication Protocol

本电能表采用 MODBUS-RTU 协议或 DL/T645 规约。具体协议格式请参照相关协议标准，此处不再赘述。当复费率功能 F 未选用时，对应的复费率数据项无意义。

The watt-hour meter adopts MODBUS-RTU protocol or DL/T645 protocol. Please refer to relevant protocol standards for the specific protocol format. When the multi-rate function F is not selected, the corresponding multi-rate data makes no sense.

8.2 MODBUS 通信地址表 MODBUS Communication Address List

数据地址 Data Address	数据名称 Data Name	长度 Length	读/写 Read/Write	备注 Remarks
0000H	当前总有功电能	4	R	无符号整型 Unsigned int. 保留 2 位小数 2 digit decimal reserved 单位 kWh Unit kWh
0001H	Present total active watt-hour			
0002H	当前总有功峰电能	4	R	
0003H	Present total active peak watt-hour			
0004H	当前总有功平电能	4	R	
0005H	Present total active plain watt-hour			
0006H	当前总有功谷电能	4	R	
0007H	Present total active valley watt-hour			
0008H	当前总有功尖电能	4	R	
0009H	Present total active peak watt-hour			
000AH	密码 Password	2	R/W	
000BH	电压 U Voltage U	2	R	无符号整型 Unsigned int.

				保留 1 位小数 1 digit decimal reserved 单位 V Unit V
000CH	电流 I Current I	2	R	无符号整型 Unsigned int. 保留 2 位小数 2 digit decimal reserved 单位 A Unit A
000DH	有功功率 P Active power P	2	R	补码形式 Complement form 有功、无功、视在功率保 留 3 位小数, 3 digit decimal reserved for the active power, reactive power, apparent power 单位 kW, kVar, kVA, Unit kW, kVar, kVA 功率因数保留 2 位小数 2 digit decimal reserved for the power factor
000EH	无功功率 Q Reactive power Q	2	R	
000FH	视在功率 S Apparent power S	2	R	
0010H	功率因数 PF Power factor PF	2	R	
0011H	频率 F Frequency F	2	R	
0012H	年月 Year & month	2	R/W	
0013H	日時 Date&time	2	R/W	
0014H	分秒 Minute & second	2	R/W	
0015H	通信地址波特率 Communication address & Baud rate	2	R/W	通信地址 Communication address: 1~247 波特率 Baud rate : 1:9600 2:4800 3:2400 4:1200
0016H	时段表: Period list: 第 1 时段费率号 Rate number of the 1 st period 第 1 时段起始时间: 分	24	R/W	费率号 Rate number: 1: 峰 Peak 2: 平 Plain 3: 谷 Valley 4: 尖 Top
0017H				
0018H				
0019H				
001AH				
001BH				

001CH	Beginning time of the 1 st period : minute 第 1 时段起始时间: 时 Beginning time of the 1 st period: hour ... 第 8 时段费率号 Rate number of the 8 th period 第 8 时段起始时间: 分 Beginning time of the 8 th period : minute 第 8 时段起始时间: 时 Beginning time of the 8 th period : hour			
001DH				
001EH				
001FH				
0020H				
0021H				
0022H	预留 Reserved	2	R/W	
0023H	电流变比 CT Current transformation ratio	2	R/W	1-99
0024H	上 1 月结算日有功总电 能 Total active energy on the settlement day of the previous month	4	R	无符号整型 Unsigned int. 保留 2 位小数 2 digit decimal reserved 单位 kWh Unit kWh
0025H				
0026H	上 1 月结算日有功峰电 能 Active peak energy on the settlement day of the previous month	4	R	
0027H				
0028H	上 1 月结算日有功平电 能 Active average electric energy on the settlement day of the previous month	4	R	
0029H				
002AH	上 1 月结算日有功谷电 能 Active valley energy on the settlement day of the previous month	4	R	
002BH				
002CH	上 2 月结算日有功总电 能 Total active energy on the settlement day of	4	R	
002DH				

	the previous February			
002EH	上 2 月结算日有功峰电能	4	R	
002FH	Active peak energy on the settlement day of the previous February			
0030H	上 2 月结算日有功平电能	4	R	
0031H	Active average electric energy on the settlement day of last February			
0032H	上 2 月结算日有功谷电能	4	R	
0033H	Active valley energy on the settlement day of last February			
0034H	上 3 月结算日有功总电能	4	R	
0035H	Total active energy on the settlement day of the previous March			
0036H	上 3 月结算日有功峰电能	4	R	
0037H	Active peak energy on the settlement day of the previous March			
0038H	上 3 月结算日有功平电能	4	R	
0039H	Active average electric energy on the settlement day of the previous March			
003AH	上 3 月结算日有功谷电能	4	R	无符号整型 Unsigned int. 保留 2 位小数 2 digit decimal reserved 单位 kWh Unit kWh
003BH	Active valley energy on the settlement day of the previous March			
003CH	正向有功电能	4	R	
003DH	Positive active energy			
003EH	反向有功电能	4	R	
003FH	Reverse active energy			

总部：安科瑞电气股份有限公司

Headquarter: Acrel Co., LTD.

地址：上海市嘉定区育绿路 253 号

Address: No.253 Yulv Road Jiading District, Shanghai, China

电话： 0086-21-69158338 0086-21-69156052 0086-21-59156392

0086-21-69156971

TEL.: 0086-21-69158338 0086-21-69156052 0086-21-59156392

0086-21-69156971

传真：0086-21-69158303

Fax: 0086-21-69158303

网址：www.acrel-electric.com

Web-site: www.acrel-electric.com

邮箱：ACREL008@vip.163.com

Email: ACREL008@vip.163.com

邮编：201801

Postcode: 201801

生产基地：江苏安科瑞电器制造有限公司

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.

地址：江苏省江阴市南闸街道东盟工业园区东盟路 5 号

Address : No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin City,Jiangsu Province,China

电话：0086-510-86179966

TEL: 0086-510-86179966

传真：0086-510-86179975

Fax: 0086-510-86179975

网址：www.jsacrel.com

Web-site: www.jsacrel.com

邮箱：sales@email.acrel.cn

Email: sales@email.acrel.cn

邮编：214405

Postcode: 214405