



## **ADL10-E**

## 申明 Declare

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## 1 概述 General

ADL10-E 单相电子式电能表是安科瑞电气集多年的电表设计经验，所推出的一代微型电能表。集测量、计量、LCD 显示、通信于一体，其可靠性高具有高稳定性、低功耗、掉电数据保存等优点。性能指标符合国标 IEC62053-21、IEC62053-22 对电能表的各项技术要求。

ADL10-E single phase electric energy meter is a new generation energy meter designed by Acrel Co.,Ltd with many years' experience in designing electricity meters. Measurement, statistic, communication and LCD display functions are installed in the power meter. This power meter has advantages of high stability, low power consumption and data saving after blackout etc. All meters meet the related technical requirements of electronic power meter in the IEC62053-21、IEC62053-22 standards.

## 2 产品功能 Functions

功能 Function	功能说明 Function description	功能配置 Function provide
电能计量 Measurement of kWh	单相有功电能计量(正、反向计量) Single-phase active kWh (positive and negative)	■
电量测量 Measurement of electrical parameters	U、I、P、Q、S、PF、F 测量 Voltage, Current, Active power, Reactive power, Apparent power, Power factor and Frequency	■
LCD 显示 LCD Display	8 位段式 LCD 显示 8 bits section LCD display	■
通讯 Communication	RS485 接口, MODBUS-RTU Communication interface: RS485, Communication protocol: MODBUS-RTU	□C

(■: 标配; □: 可选 ■: means standard; □: means optional)

## 3 技术参数 Technical parameter

### 电气特性 Electric performance

电压输入 Input voltage	参比电压 Reference voltage	AC220V
	参比频率 Reference frequency	50Hz
	功耗 Power consumption	<10VA
电流输入 Input current	基本电流 Basic current	10A

	最大电流 Maximum current	60A
	起动电流 Starting current	0.004Ib
	功耗 Consumption	<4VA (最大电流) (Maximum current)
测量性能 Measurement performance	测量精度 Accuracy of measuring	1 级 1 Class
	测量范围 Range of measuring	000000.00~999999.99kWh
通信 Communication	接口 Interface	RS485(A+, B-)
	介质 Connection mode	屏蔽双绞线 Shielded twisted pair conductors
	协议 Protocol	MODBUS-RTU、DL/T645-07

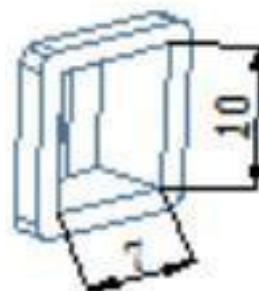
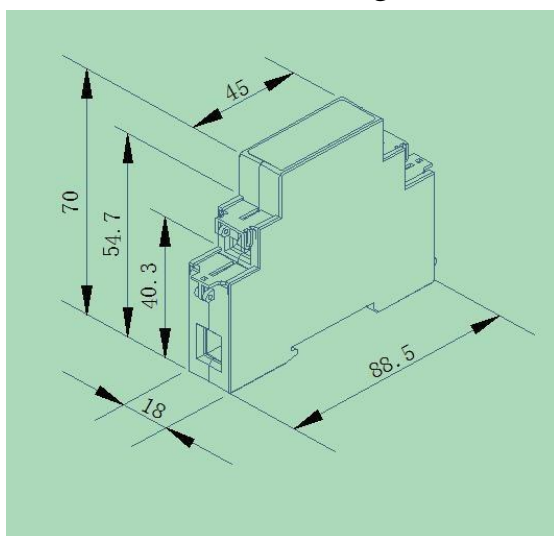
#### 机械特性 Mechanical performance

外形尺寸 (长×宽×高) Outline (Length × Width × Height)	18mm×96 mm×70mm
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#### 环境条件 Work environment

温度范围 Range of temperature	工作温度 Working temperature	-25°C~55°C
	存储温度 Storing temperature	-40°C~70°C
相对湿度 Relative humidity	≤95% (无凝露) (No condensation)	
海拔 Altitude	<2000m	

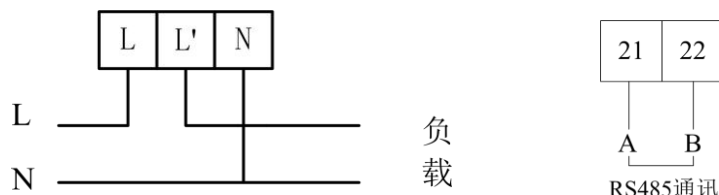
## 4 外形尺寸 Dimension drawings



注：接线力矩不应大于 4.0N m。

## 5 接线与安装 Wiring and installing

接线图 Wiring diagram



安装注意事项 Installing notices

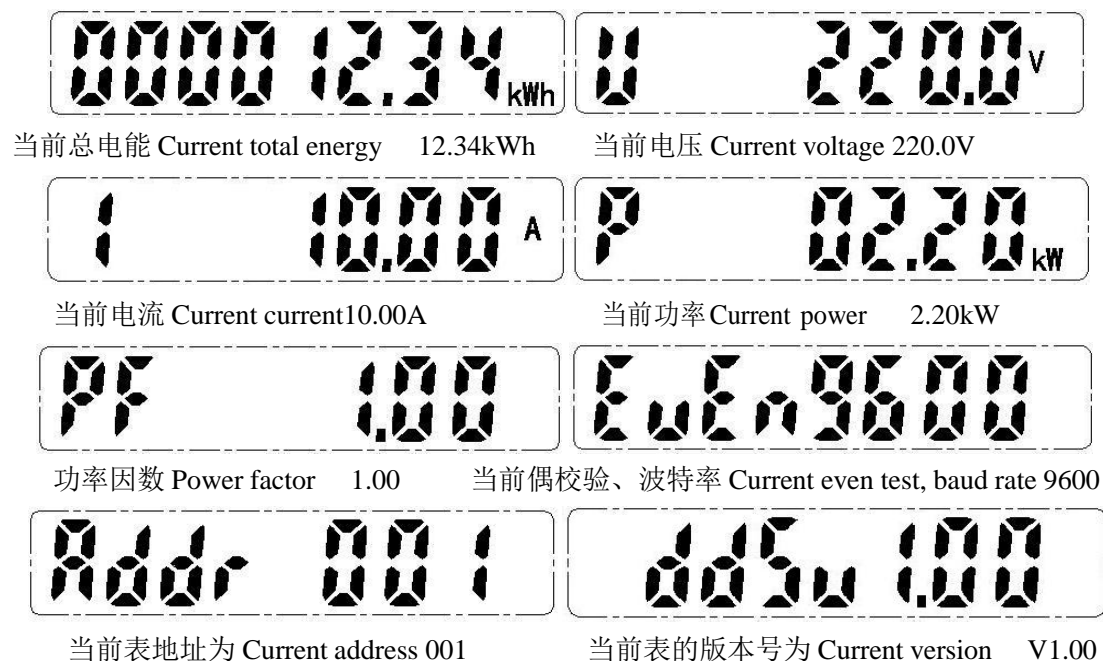
ADL10 单相电子式电能表采用直接接入方式，接线时应注意进线和出线方向，并请务必拧紧，避免因接触不良而引起电能表工作不正常。

ADL10 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 显示说明 Display description

上电后显示总电能，轮流显示电压电流功率等信息。以下为显示示例：

The meter shows total energy first while turning on and then shows voltage, current and power, etc. in turn. The example shows as following:



## 7 通信说明 Communication description

## 通信协议 **Communication protocol**

本电能表采用 MODBUS-RTU 协议和 DL/T645-2007 规约。具体协议格式请参照相关协议标准，此处不再赘述。

The meters adapt Modbus and DL/T645 protocol. Please refer to the relevant standards for more information.

**MODBUS通信地址表 **Communication address table****

数据地址 Address	数据名称 Variable	长度 Length	属性 R/W	备注 Notes
0000H	有功总电能	4	R	单位 unit: 0.01kWh
0001H	Current total electricity			
0002H ... 000AH	保留 Reserved			
000BH	电压 Voltage	2	R	单位 unit: 0.1V
000CH	电流 Current	2	R	单位 unit: 0.01A
000DH	有功功率 Active power	2	R	单位 unit: 0.001kw
000EH	无功功率 Reactive power	2	R	单位 unit: 0.001kvar
000FH	视在功率 Apparent power	2	R	单位 unit: 0.001kVA
0010H	功率因数 Power factor	2	R	单位 unit: 0.001
0011H	频率 Frequency	2	R	单位 unit: 0.01Hz
0012H ... 0014H	保留 Reserved			
0015H(高位)	地址 Address	1	R/W	1~247
0015H(低位)	波特率 Communication baud rate	1	R/W	00: 9600 01: 4800 02: 2400 03:1200
0016H ... 0047H	保留 Reserved			
0048H	校验方式 Method of testing	2	R/W	02:偶校验 even 00:无校验 none
0049H ...	表号 Device ID	6	R/W	

004BH				
004CH	正向无功电能	4	R	单位 unit: 0.01kWh
004DH	Forward reactive electric energy			
004EH	反向无功电能	4	R	单位 unit: 0.01kWh
004FH	Reversing reactive electric energy			
0050H ... 0067H	保留 Reserved			
0068H	正向有功电能	4	R	单位: 0.01kWh
0069H	Forward active electric energy			
006AH ... 0071H	保留 Reserved			
0072H	反向有功电能	4	R	单位: 0.01kWh
0073H	Reversing active electric energy			