AUTOMETERS SYSTEMS

# ADL-400

**3 Phase 80A direct connect low voltage meter**


## General

ADL400 three phase electric meter is designed for three phase measurement on low voltage system. The meter meet the related technical requirements of electronic meter in the IEC62053-21 IEC62053-22 standards.

## Functions

Table 1 Function description list

| Function | Function description | Function provide |
|---|---|---|
| Measurement of kWh | Active kWh (positive and negative) | ■ |
| | Reactive kWh (positive and negative) | ■ |
| | A. B, C split phase positive active energy | ■ |
| Measurement of electrical parameters | U、I | ■ |
| | P、Q、S、PF、F | ■ |
| Measurement of harmonics | 2~31ST Voltage and current harmonic | ■ |
| LCD Display | 12 bits section LCD display, background light | ■ |
| Key programming | 3 keys to communication and set parameters | ■ |
| Pulse output | Active pulse output | ■ |
| Multi-tariff and functions | Adapt 4 time zones, 2 time interval lists, 14 time interval by day and 4 tariff rates | □ |
| | Max demand and occurrence time | □ |
| | Frozen data on last 48 months, last 90days | □ |
| | Date, time | □ |
| Communication | Communication interface: RS485, Communication protocol: MODBUS-RTU | ■ |

## Parameters

Table 2 technical parameter descriptions

| project | | | performance parameter | |
|---|---|---|---|---|
| Specification | | | 3 phase 3 wires | 3 phase 4 wires |
| Measurement | Voltage | Reference voltage | 3×100V、 3×380V | 3×57.7/100V、 3×220/380V |
| | | Voltage range | 3×100V - 3×450V | 3×57.7/100V - 3×260/450V |
| | | Consumption | <10VA(Single phase) | |
| | | Impedance | >2MΩ | |
| | | Accuracy class | Error±0.2% | |
| | Current | Input current | 3×1(6)A， 3×10(80)A | |
| | | Consumption | <1VA Single phase rated current | |
| | | Accuracy class | Error±0.2% | |
| | Power | | Active, reactive, apparent power, error±0.5% | |
| | Frequency | | 45~65Hz，Error±0.2% | |
| Metering | Energy | | Active energy(Accuracy class: 0.5); reactive energy(Accuracy class 2) | |
| | Clock | | ≤0.5s/d | |
| Digit signal | Energy pulse output | | 1 active photocoupler output | |
| pulse | Width of pulse | | 80±20ms | |
| | Pulse constant | | 400imp/kWh,10000imp/kWh(Correspond with the basic current) | |
| communication | Interface and communication protocol | | RS485：Modbus RTU | |
| | Range of communication address | | Modbus RTU:1~ 254； | |
| | Baud rate | | 1200bps~38400bps | |
| environment | working temperature | | -25℃~+55℃ | |
| | Relative humidity | | ≤95%(No condensation) | |

## Dimension drawings (Unit: mm)

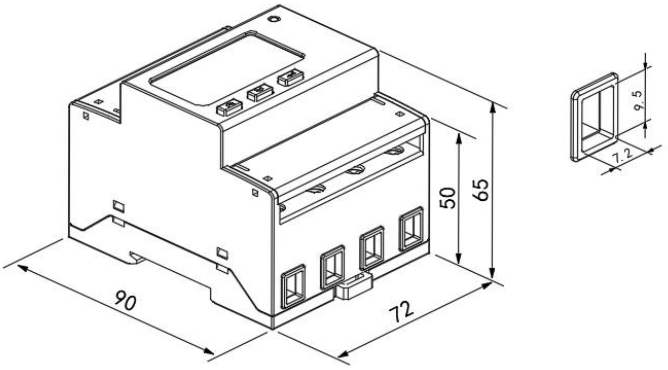
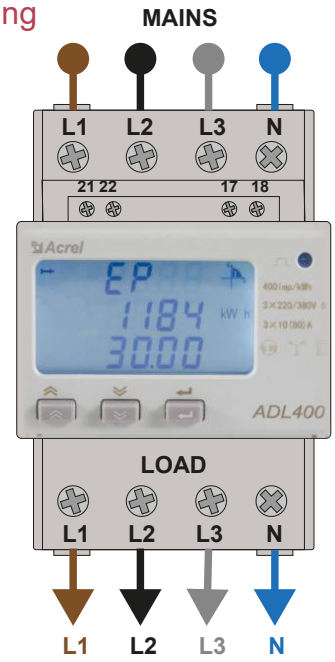



Fig 1 direct connect

The torque of direct connect should not be greater than 4.0N·m

## Wiring




COMMUNICATION TERMINALS

| 21 | 22 | 17 | 18 |
|---|---|---|---|
| A | B | + | - |
| RS485 | | Active Pulse | |

## Function description

### Measurement

It can measure the electrical parameter,include U、I、P、Q、S、PF、F、1~31th harmonic。
If：U = 220.1V，f = 49.98Hz，　I = 1.99A，P = 0.439kW
Such as:U = 220.1V，f = 49.98Hz，　I = 1.99A，P = 0.439kW

### Calculating

Can measure the active energy、forward active energy、reversing active energy、forward reactive energy、reversing reactive energy。

### Timing

Two timing table，four time zone，one table have fourteen timing，four rate。

### Demand

The description about demand:

Table 3 Demand description list

| | |
|---|---|
| Demand | The average power in the demand cycle. |
| Maximum demand | The maximum value of demand in a period of time. |
| Slip time | A recurrence method to measure the demand from any time point during a period shorter than the demand period. The demand measured by this means is called sliding demand. The recurrence time is sliding window time. |
| Demand cycle | The time period between two same average value of demand. |

The default demand cycle is 15 minutes, slip time is 1 minute.
The meter can measure 4 kinds of maximum demand: forward active, reversing active, inductive reactive, capacitive reactive maximum demand and the occur time.

### History data statistics

The meter can record last 48 months or last 90 days history energy in each tariff.

## Operation and display

### Key function description

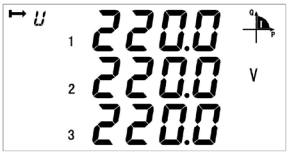
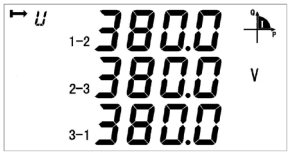
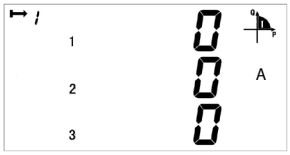
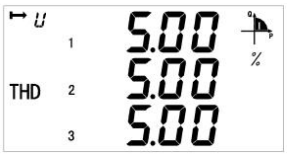
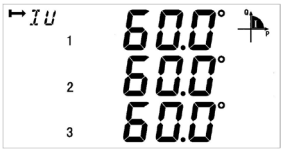
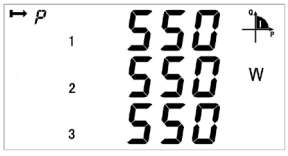
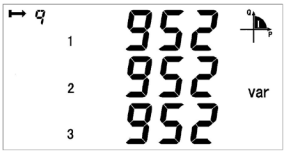
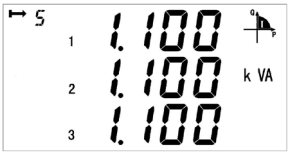
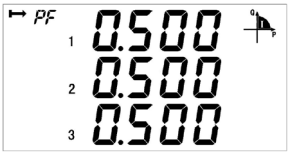
Table 4 Key's function description

| icon | Name | Function |
|---|---|---|
| | Voltage and current, up | Check the voltage and current<br>Leftward and change flash in programming menu |
| | Power, down | Check the power<br>Rightward and change the value on flash |
| | Energy, enter | Check the energy<br>In/out programming menu<br>Save changes |

### Display menu

The meter will show the forward active energy after powering. The customers can change the information showing by pressing the keys. The menu description is listed as below:

Table 5 display descriptions

| | | |
|---|---|---|
| | Start-up screen shows all characters |  KWh reading 118430.00 |
| |  Three-phase voltage |  Three phase line voltage |
| |  Three-phase Current |  Frequency |
| |  Harmonic content of three phase Voltage |  Harmonic content of three phase Current |
| |  Phase angle | |
| |  Three phase active power |  Total active power |
| |  Three phase reactive power |  Total reactive power |
| |  Three phase apparent power |  Total apparent power |
| |  Three phase power factor |  Total power factor |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