

ADF400L Series multi user electric energy meter

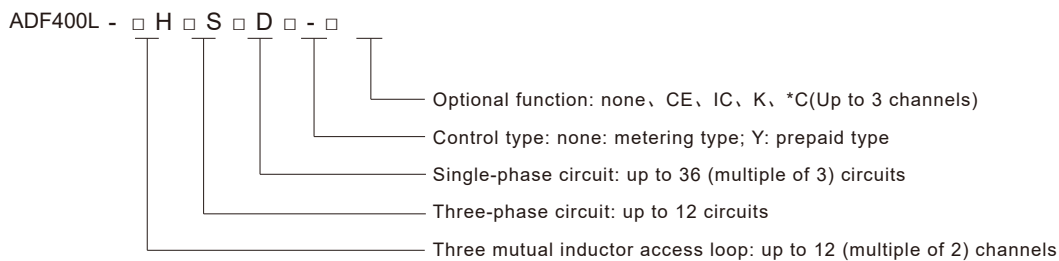
General

The ADF400L series multi-user electric energy meter can achieve up to 12 three-phase or 36 single-phase direct access measurement or 12 three-phase mutual inductor access measurement, a hybrid of direct access and mutual inductor access through module combination measurement method. This series of electric energy meters are popular among communities, schools, enterprises, etc. due to their high accuracy, centralized installation, centralized management, high installation flexibility, and non-interference.



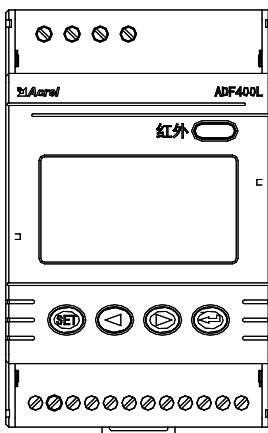
Product Specifications

■ Model Description



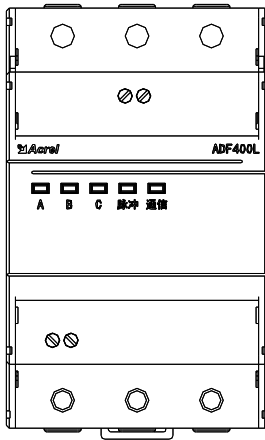
- Note: 1、 The product consists of main module, direct access module and transformer access module;
 2、 The product leaves the factory according to the module combination method;
 3、 The maximum combination of products can achieve 12 three-phase measurements (3 single-phase can be converted into 1 three-phase loop);

■ Product Module Description



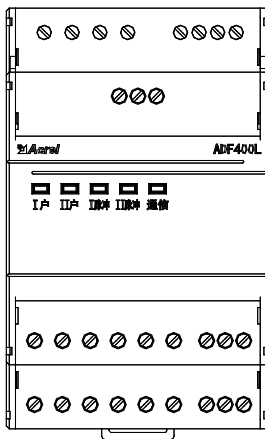
Main module

- 1、 Three-phase 3*220/380V power supply to provide working power for the back-end measurement module;
- 2、 Man-machine interface: LCD and button programming;
- 3、 Infrared communication;
- 4、 RF card swiping (IC function);
- 5、 2 RS485 network communication (*C function);
- 6、 RS485 communication for No. 3 extended wireless module (RJ45 connection mode);
- 7、 Up to 2DI/2DO (K function);
- 8、 Up to 1 Ethernet communication (CE function);



Direct access to the measurement module

1. It can realize one-way three-phase 3*10 (80) measurement or three-way single-phase 10 (80) A measurement;
2. 1 active energy pulse output;
3. Three-phase working status, pulse and communication status LED indication;



Transformer access measurement module

1. Two-way three-phase 3*1 (6) A measurement can be realized;
2. 2 active energy pulse output;
3. 2 three-phase working status, pulse and communication status LED indication;
4. Up to 4DI/4DO function (K function);

Product Functions

■ Prepaid

| Function | Function description |
|---|--|
| Energy metering | Total active energy, forward and reverse active energy, multi-rate active energy measurement |
| Electricity measurement | U、I |
| | P、Q、S、PF、F |
| LCD display | 8-digit segment LCD display, backlight display |
| Button programming | Key programmable communication, number of loops, single three-phase mode, external control mode and other parameters |
| Pulse output | Active pulse output |
| Multiple rate | Support 4 time zones, 2 time slots, 14 daily time slots, 4 rates |
| | Date, time, day of the week |
| Main module | Infrared communication |
| Communication | Up to 3 channels of communication: RS485 interface, Also support Modbus |
| Prepaid agreement (remote, radio frequency card) | Cost control (including forward active power and reverse active power) |
| | Time control |
| | Negative control (malignant load identification) |
| | Strong control |
| Recharge record | 20 Article |

■ Metering type

| Function | Function description |
|-------------------------|---|
| Display method | LCD (Field) |
| Energy metering | Active energy metering (Forward and reverse) , Reactive power measurement (Forward and reverse) |
| Electricity measurement | Voltage, current (zero sequence current), power factor, frequency, active power, reactive power, apparent power |
| Harmonic function | Total harmonic content, sub-harmonic content (2~31 times) |
| Three-phase unbalance | Voltage and current unbalance |
| DI/DO | Main module 2DI2DO |
| | Transformer access to the slave module 2DI4DO (direct access to the slave module without) |
| LED Instructions | Pulse light indication |
| Communication | Infrared communication |
| | RS485 interface (main module) supports MODBUS |
| Historical power | Historical Electricity in Last December |

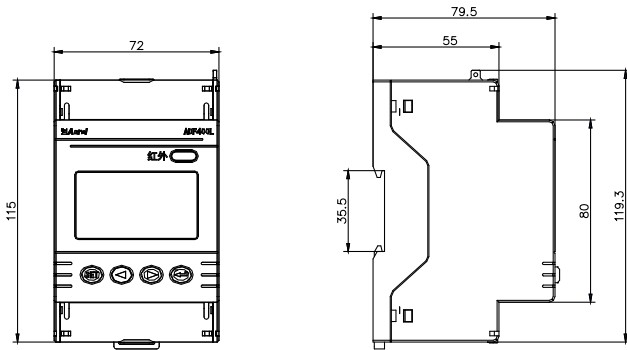
Technical Parameter

| Technical Parameter | Model | ADF400L-□H□S□D(Y)-□ |
|-------------------------|----------------------|---|
| Auxiliary power | Voltage | Three-phase 3*220V/380V power supply (for single-phase power supply, short-circuit terminals 1, 2, and 3 on the instrument) |
| | Power consumption | ≤10W |
| Voltage input | Rated voltage | 3×220/380V、3×57.7/100V、 |
| | Reference frequency | 50Hz |
| Current input | Input Current | 3×1(6)A(Instrument transformer access), 3×10 (80) (direct access) |
| | Starting current | 1%Ib |
| Measuring performance | Measurement accuracy | 0.5s level |
| | Clock accuracy | ≤0.5s/d |
| Pulse | Pulse output | Each three-phase metering module has 1 active energy pulse |
| | Pulse Width | 80ms±20ms |
| | Pulse constant | 3×1(6)A specification |
| 3×10(80)A specification | | 400 imp/kWh |
| Switch | Main module | Main module 2DI+2DO, Among them, DI is dry contact input |
| | Slave module | Transformer access slave module 4DI+4DO, Among them, DI is 220V wet contact input |
| Communication | Infrared interface | Infrared communication |
| | RS485 interface | MODBUS-RTU |
| | Ethernet interface | Modbus-TCP、TCP/IP |
| Surroundings | Temperature | Operating temperature: -20 C~+60 C , |
| | | storage temperature: -30 C~+70 C |
| | Humidity | ≤95%RH, No condensation, no corrosive gas place |
| Altitude | ≤2000m | |

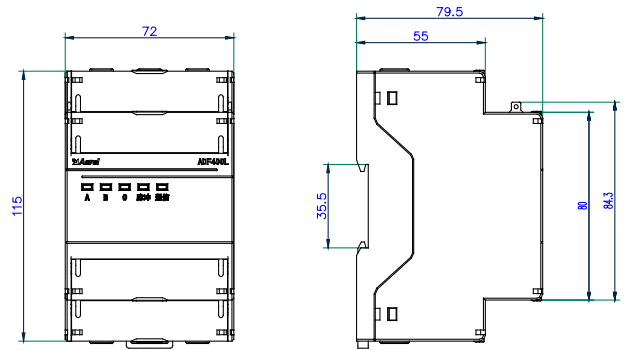
Outline and installation dimensions (unit: mm)

The electric energy meter should be installed in a ventilated and dry place indoors, using 35mm standard guide rail installation.

■ Dimensions



Main module size

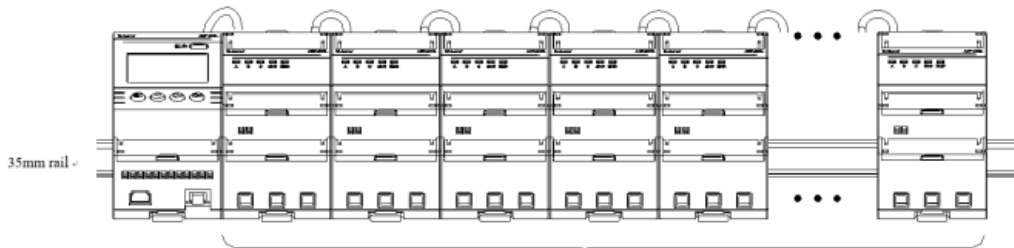


Slave module (direct access or transformer access module) size

■ Module combination installation method

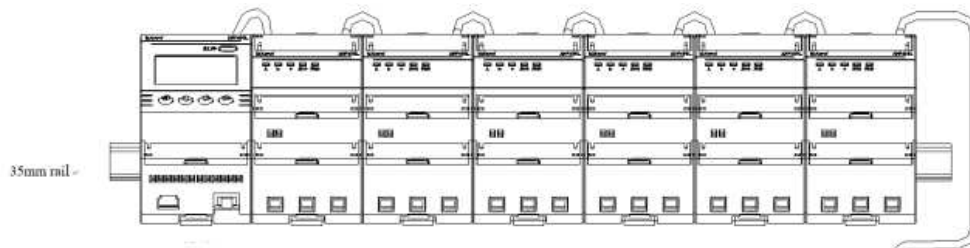
The connection method between the master module and the slave module is connected by a network cable, and the connection network cable needs to use the meter's own network cable;

- ◆ The slave modules are directly connected to the module:



Main module

Less than 12 slave modules

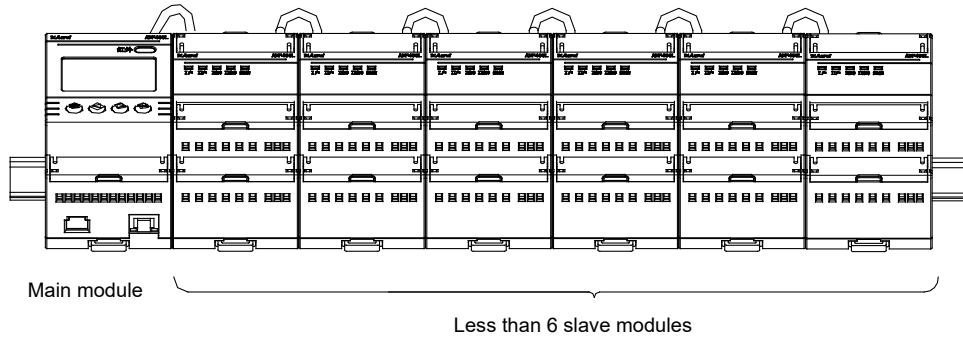


Main module

Less than 12 slave modules

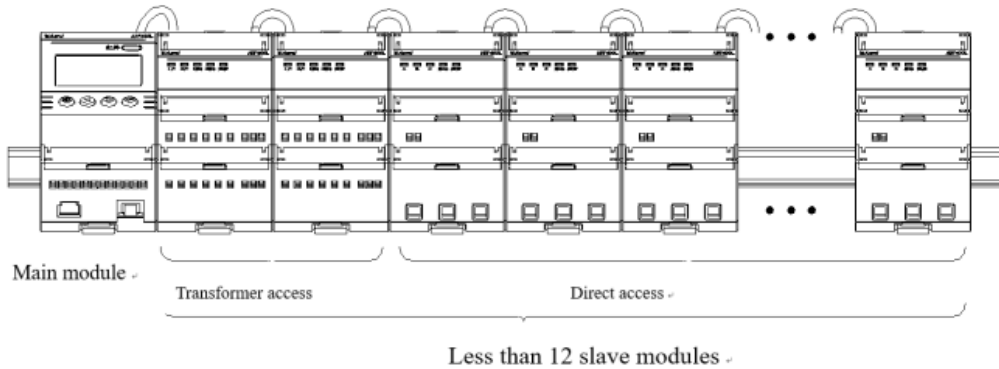
- Note:
- When the module is installed in multiple rows, refer to the connection method of double row installation in 5.2.1;
 - When there are three-phase and single-phase applications in the module at the same time, the order of arrangement is, main module three-phase direct access module single-phase direct access module;

◆ The slave modules are all transformer access modules:



- Note:
- Refer to the connection method of double-row installation in 5.2.1 when the module is installed in multiple rows;

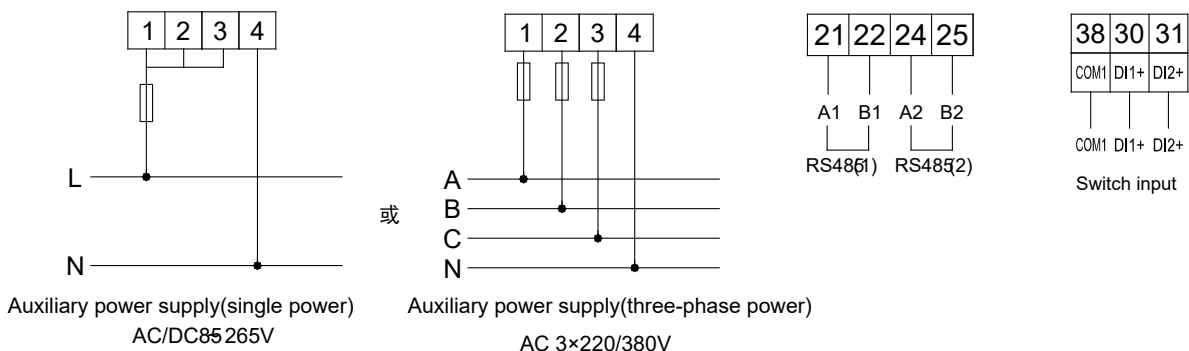
◆ The slave module is a mixed connection of the secondary access measurement module and the direct access measurement module:

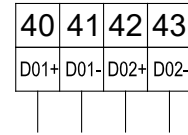
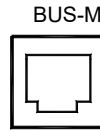
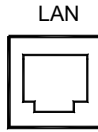
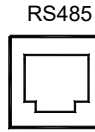


- Note:
- When the module is installed in multiple rows, please refer to 5.2.1 for the connection method of double row installation.;
 - When there are three-phase and single-phase applications in the direct module at the same time, the order of arrangement is: main module mutual inductor access module three-phase direct access module single-phase direct access module

Wiring and installation

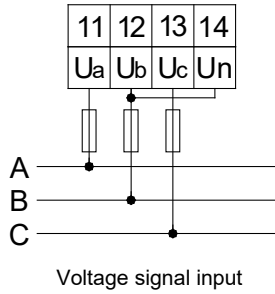
■ Main module



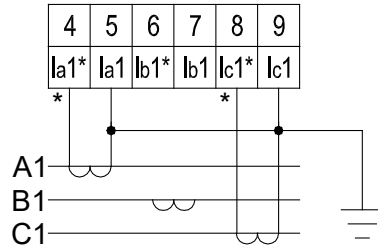


D01+ D01- D02+ D02-

Transformer access module

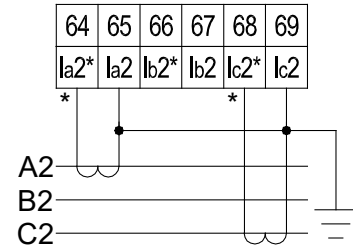


Voltage signal input

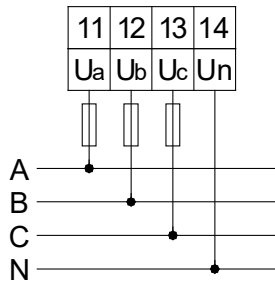


The first current input

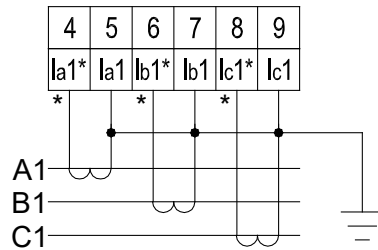
Three-phase three-wire



The second current signal input

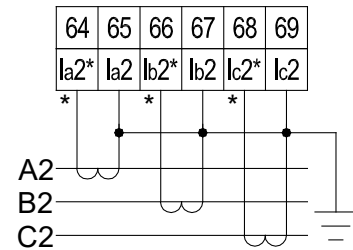


Voltage signal input

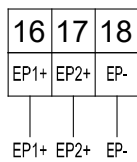


The first current input

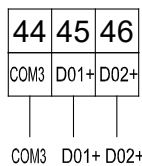
Three-phase four-wire



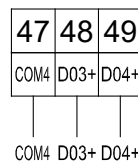
The second current signal input



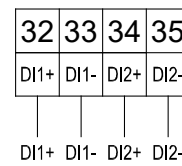
Energy pulse output



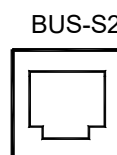
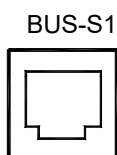
The first relay output



The second relay output

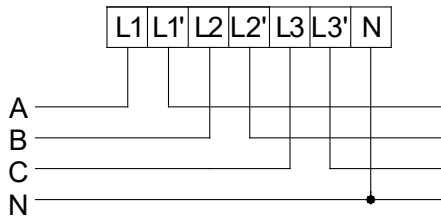


The third relay output

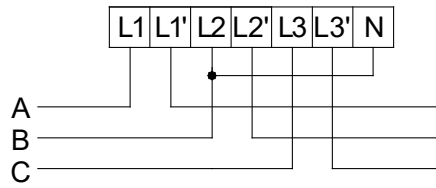


Modbus Communication port (with power supply)

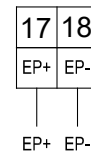
Direct access to the module



Three-phase four-wire connection

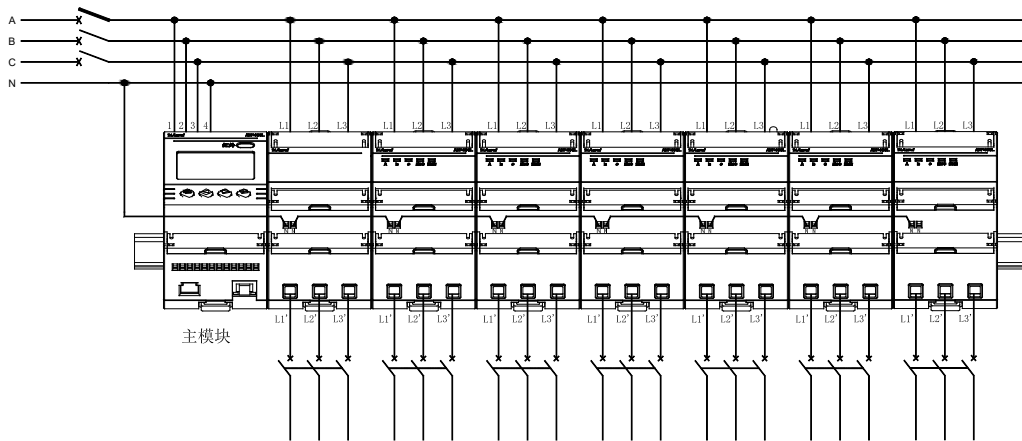


Three-phase three-wire wiring

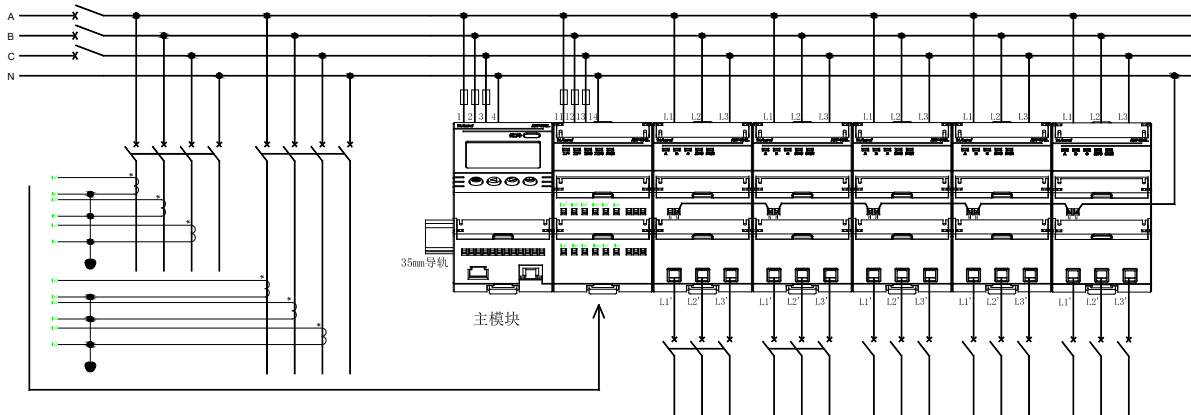


Active energy pulse output

Wiring diagram



36-channel single item direct access diagram



2 channels of transformer access + 2 channels of three items direct access + 6 channels of single item direct input

Button programming

Under any display item in the measurement display menu, press **SET** display "0000", Prompt to enter the password (password default 0001) and then press **↵**, If the password is entered incorrectly, it will return to the initial interface; if the password is entered correctly, you can set the parameters. After setting, press **SET** enter "SAVe" interface, Press **↵** appear "YES"、"NO" Options, "YES" Press down **↵** Then save and exit, when "NO" Press **↵** Then exit without saving. The programming menu list is as follows:

| First level menu | Second level menu | Meaning | Range |
|------------------|-------------------|---------------------------------------|---|
| Addr 1 | / | Mailing address settings 1 | 1、37、73、109 (Add sequentially 36) |
| baud 1 | / | Baud rate selection 1 | 9600、4800、2400、1200 |
| Addr 2 | / | Mailing address settings 2 | 1、37、73、109 (Add sequentially 36) |
| baud 2 | / | Baud rate selection 2 | 9600、4800、2400、1200 |
| Code | / | Password setting | 0-9999 |
| bLb, nE | / | Backlight setting | 0-999 |
| FEEn | / | Strong control enable | 0: Disable; 1: Enable; 2: invalid |
| FEStA | / | Strong control state | 0: disconnect; 1: closure; 2: invalid |
| HPHnUñ | / | Number of transformer access circuits | 0、2、4、6、8、10、12 |
| SPHnUñ | / | Number of three-phase circuits | 0-12 |
| dPHnUñ | / | Number of single-phase circuits | 0-36 |
| do | / | Relay settings | L: Level output; P: Pulse output |
| Li nE | / | Line selection | 3P4L: Three-phase four-wire; 3P3L: Three-phase three-wire |
| PtEt | Pt | Voltage transformation ratio setting | 1-9999 |
| | Et 1 | Current ratio setting 1 | 1-9999 |
| | Et 2 | Current ratio setting 2 | 1-9999 |
| | Et 3 | Current ratio setting 3 | 1-9999 |
| | Et 4 | Current ratio setting 4 | 1-9999 |
| | Et 5 | Current ratio setting 5 | 1-9999 |
| | Et 6 | Current ratio setting 6 | 1-9999 |
| | Et 7 | Current ratio setting 7 | 1-9999 |
| | Et 8 | Current ratio setting 8 | 1-9999 |
| | Et 9 | Current ratio setting 9 | 1-9999 |
| | Et 10 | Current ratio setting 10 | 1-9999 |
| | Et 11 | Current ratio setting 11 | 1-9999 |
| | Et 12 | Current ratio setting 12 | 1-9999 |
| dbU9PASS | / | Debug function settings | 0-9999(6606: Slave address rearrangement) |
| CESEt | 9AtE, P 1 | Gateway IP address 1,2 | |
| | 9AtE, P 2 | Gateway IP address 3, 4 | |
| | nASk 1 | Subnet mask 1,2 | |
| | nASk 2 | Subnet mask 3, 4 | |
| | , P 1 | Local IP address 1,2 | |
| | , P 2 | Local IP address 3,4 | |
| | Port | Port | |
| EnCrYPt | / | Encryption switch settings | on: encryption on, oFF: encryption off |
| UEr | / | Software number and version number | |