2021.04

Acrel

MICRO-GRID SYSTEM SOLUTIONS

Acrel

[Stock Code：300286.SZ]

Solutions For Enterprise

Micro-grid System



ACREL CO.,LTD.

2021.04

Address: No.253 Yu Lv Road Jiading District,Shanghai,China Postcode: 201801
TEL:0086-21-69158338 0086-21-69156052 0086-21-59106392 0086-21-69156971
Web-site: www.acrel-electric.com Email: acrel008@vip.163.com

BRIEF INTRODUCTION

Company Profile

Acrel Co., Ltd. [Stock Code : 300286. SZ] is a high-tech enterprise concentrating on research, production, sales and services. It mainly provides systemic solutions of energy efficiency management and electrical safety for users. 'Acrel' is equipped with the complete production lines from cloud platform software to sensors. Until now, it has more than 8000 sets systemic solutions used in China to help users to realize energy visual management ,supply energy data services and improve electrical efficiency and safety. 'Acrel' has maintained steady growth since its listing in 2012. The company will adhere to the concept of 'innovation,high-efficiency,unity and honesty' and it provides more high-quality solutions,products and service for power system users and micro-grid.

CONTENTS

Cloud Platform I

1. Operation and Maintenance Cloud Platform for Substations ---- 01
2. Prepayment Cloud Platform ---- 03
3. Cloud platform for Power IoT ---- 06

Solutions II

1. Split core current transformer ---- 10
2. Hall effect current sensor ---- 15
3. Smart Motor Control and Protection Solution ---- 18
4. Temperature and humidity measurement solution ---- 20
5. Power Monitoring System ---- 23
6. Wireless Temperature Monitoring System ---- 26
7. residual current operated relay ---- 29
8. Energy management system ---- 32
9. Prepaid solution ---- 35
10. Photovoltaic system solutions ---- 37
11. Smart Busway monitoring solution ---- 40
12. Precision distribution monitoring solution for IDC ---- 42
13. Energy consumption monitoring solution for Base station ---- 45
14. Charging Pile Energy Management System Solution ---- 46

Equipment Sets III

1. ANSVG Static Var Generator ---- 49
2. ANAPF Active Power Filter ---- 51

Monitoring Device IV

1. Power Monitoring and Controlling ---- 53
   1) AMC Series Programmable Power Meter ---- 53

CONTENTS

Monitoring Device IV

2) PZ Series DC Power Analyzer ---- 61
3) ARTU Series Remote Terminal Unit ---- 63
4) ARD Series Smart Motor Protector ---- 65
5) WHD Series Temperature&Humidity Controller ---- 71
6) AM Series Protection Relay ---- 74
7) ARTM Series Temperature Monitor ---- 84
8) ASJ Series Residual Current Relay ---- 86
2. Energy Management ---- 89
1) APM Series Multifunction Meter ---- 89
2) ADL Series Din Rail Energy Meter ---- 93
3) ADL Series Prepayment Meter ---- 97
4) ADF Series Multi-circuits Energy Meter ---- 98
5) AEW Series Wireless Energy Meter ---- 102
6) ADW Series IoT Power Mete ---- 104
3. New Energy ---- 108
1) AGF-AE Series PV/Solar Inverter Energy Meter ---- 108
2) AGF Series Solar String Monitoring Device ---- 109
4. Smart Gateway ---- 111
1) AWT100 Series Wireless Communication Terminal ---- 111
2) ANet Series Smart Gateway ---- 112
3) DTU Data Transmission Module ---- 116
5. Data Center/Tower/Base Station ---- 117
1) AMC Series Data Center Monitor Module ---- 117
2) DTSD Series Multi-Circuits Energy Meter ---- 124
3) AMC Series Multi-Circuits DC Energy Meter ---- 127
4) ADW350W Series IoT Energy Meter ---- 128

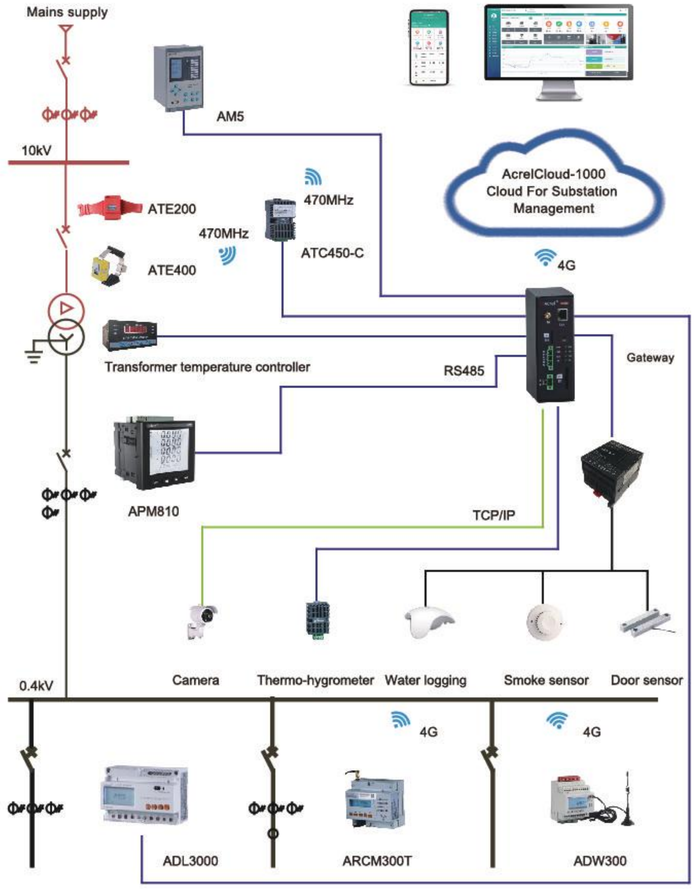
Cloud Platform

Operation and Maintenance Cloud Platform for Substations

1.Application

- Factory
- Hospital
- University
- Community
- Commercial&Complex

2.Structure



➢ 3.Main Functions

24/7 Cloud-enabled Monitoring Service

Monitoring electrical parameters such as voltage, current, power, frequency, harmonics and three-phase imbalance, cable and bus temperature.



Fault Alarm

Platform can send all kinds of alarm information (such as overvoltage, undervoltage, overcurrent, smoke, switch trip) to users by SMS/Email/APP.



Energy Efficiency Analysis

Platform can provide hourly, daily, monthly, and annual power consumption report according to the distribution circuit, area, department, and sub-item (lighting, air conditioning, power, etc.).



Equipment Management

Set and update equipment archives of transformers, inlet cabinets, outlet cabinets, measuring cabinets, high-voltage cables, etc. Recording the installation and repair information of these equipment to realize life cycle management.



Inspection and Repair Management

The platform can prepare the tasks and send it to the mobile of the engineer. By App, engineer performs the tasks and record the defects at the substation site.



User Report

Automatically summarizes the operation data of the substation for one month and lists various defects found during the inspection.

App Access

By App,users can realize the functions of video monitoring ,power parameter query, energy analysis, alarms receiving, inspections and defects recording.

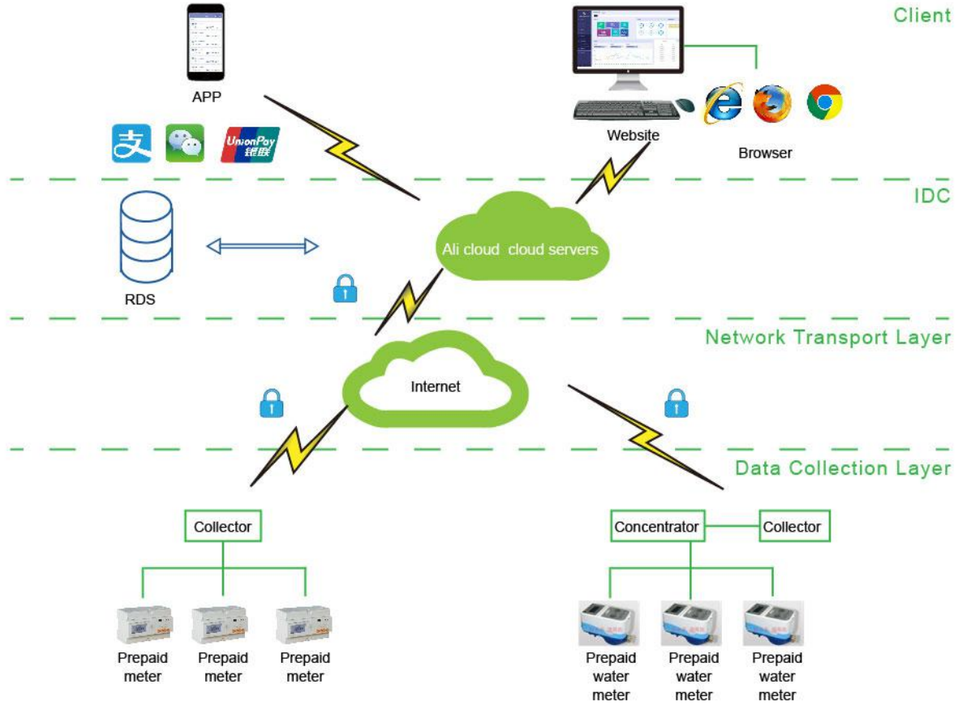


Prepayment Cloud Platform

➢ 1.Application

- Chain Stores
- Chain Hotels
- Properties
- University Dormitories
- Intelligent Communities

2.Structure



3.Main Functions

Remote Data Monitoring, Remote Deposit

The data is uploaded to the cloud platform in real-time through gateway, unit price can be set on each electricity meter or water meter.

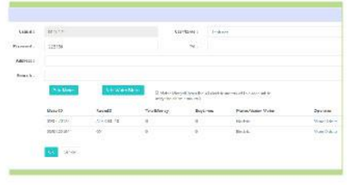


Cloud Deployment

Software installation, upgrade and maintenance are easy.

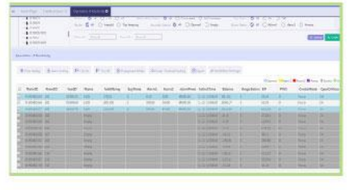
Balance Warning

When the balance is insufficient, the system will remind the users to recharge in time by SMS or E-mail.



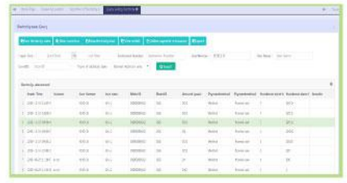
Remote Control

According to the management requirements, the user can control the electricity meter and water meter within his authority.For example, control the power switch and water meter valve, set the price and the alarm parameters, etc.



Energy Report

The system can provide various reports, such as energy consumption report and financial report，etc.

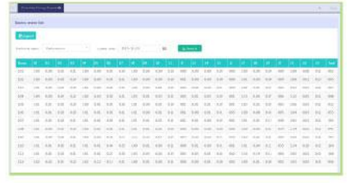


Online Payment

The users can check balance and recharge online.

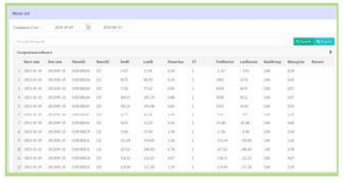
Third Party Interface API

The system can provide interface(API or SDK) for a third-party platform.



Application in Dormitories

The system can support dormitory management, such as timing control, unsafe load identification,ect.



Historical Record and Report

All alarm information, remote control and recharge operation are recorded in the logs for users to query.

➢ 4.Product Selection

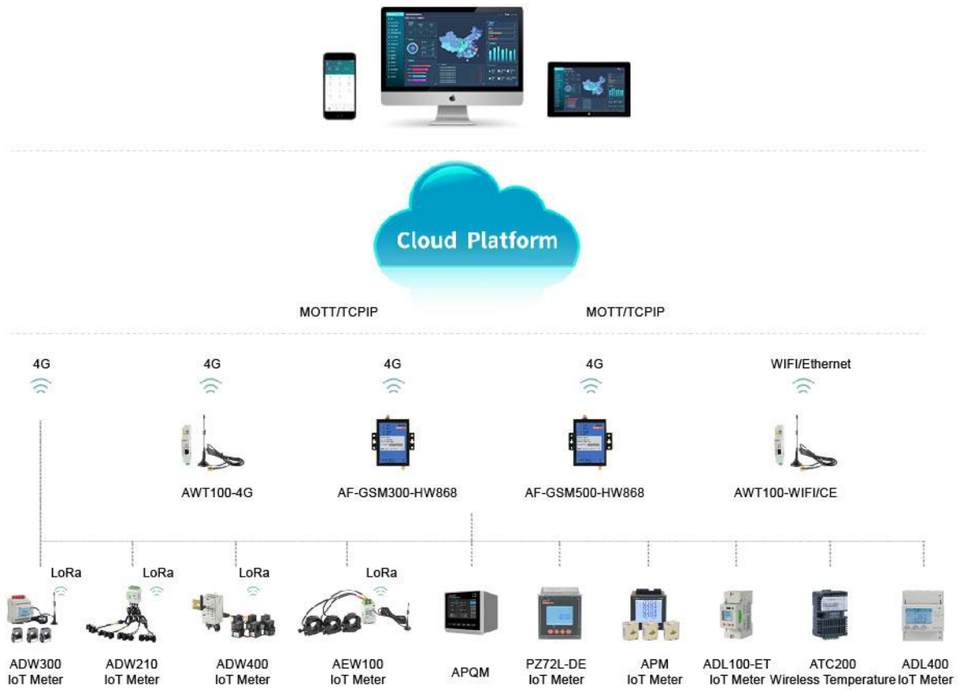
No.	Name	Specifications
1	Smart gateway	ANet-2E8S1 2* 10M/100M RJ45 8*RS485 1*4G
2	Smart gateway	AF-GSM400-4GY 1*RS485 1*4G 24V DC power supply
3	Three-phase prepaid meter	ADL300-EY
4	Single-phase prepaid meter	ADL100-EY
5	Multi-circuit prepaid meter	ADF300L
6	Switching power supply	KDYA-DG30-24K output DC 24V
7	Data acquisition box	400mm*500mm*200mm

Cloud Platform For Power IoT

➢ 1.Application

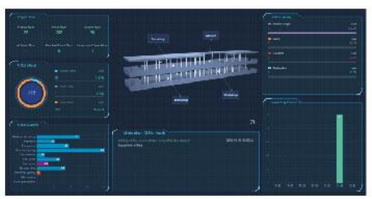
- Substation
- Building
- Telecommunication base station
- Industrial energy consumption
- Intelligent lighthouse
- Operation and maintenance of power

➢ 2.Structure



➢ 3.Main Functions

■ Alarm Analysis



■ Energy situation



■ Details of electrical parameters



■ Equipment status



➢ 4.Product Selection

Application	Type	Functions
Gateway	AF-GSM500-4G	Meter reading by LoRa or RS485;Uplink Communication:4G or Ethernet; Protocol: Modbus-TCP,MQTT,etc,protocol can be customized;Support breakpoint transmission,local data storage,local display and button setting.
	Anet-1E2S-4G	Downlink:2* RS485； Uplink:4G
	AF-GSM300-HW868	Downlink:LoRa or RS485;It is used with AEW100-HW868;Uplink:4G; Protocol:MQTT
	AWT100-4GHW	Downlink:RS485;Uplink:4G,WiFi or Ethernet
IoT meter	AEW100	Measurement:3 phase voltage,current,power,power factor ,etc.； 2-31st individual harmonic and THD measurement ； Extreme records of voltage, current and power in this month and last 3 months； Max demand and historical MD of last 12 months； SOE； Communication:RS485 or LoRa
	ADW210	Measurement: 4 circuits 3 phase voltage,current,power,power factor ,etc.； Max demand； Communication:RS485 or LoRa
	ADW300	Measurement:3 Phase voltage,current,power,power factor,etc.； Accuracy:1； Max demand ； Communication:RS485,LoRa,4G,NB or 2G
	APM830	Measurement:current,voltage,energy,SOE,etc.;DI/DO,AI/AO,TF card,etc.; Communication:2*RS485,Ethernet and Profibus-DP
	AMC96	Measurement:current,voltage,active power,reactive power,etc.; Accuracy:0.5;Communication:RS485;Certificate:CE,IEC
	ADL10-ET	Measurement:voltage,current,power,energy,etc.； Multi-tariff function； Communication:RS485 Mobus-RTU
Split core open CT	AKH-0.66/K	Current ratio:up to 5000/5A;Accuracy:0.5,0.2
Closed loop CT	AKH-0.66I	Current ratio:up to 6300/5A;Accuracy:0.2,0.5

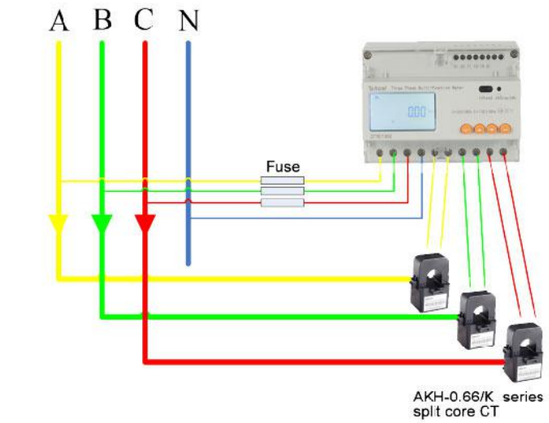
Solutions

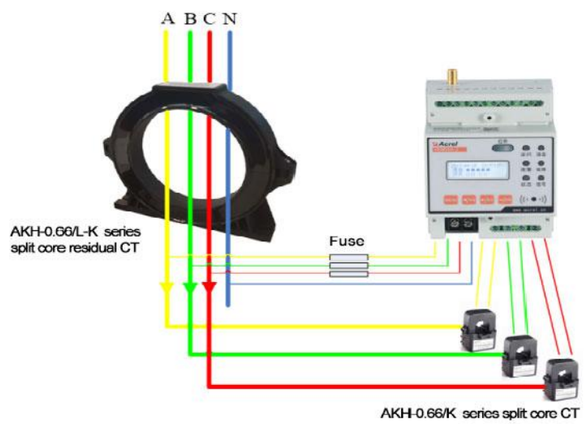
Split Core Current Transformer

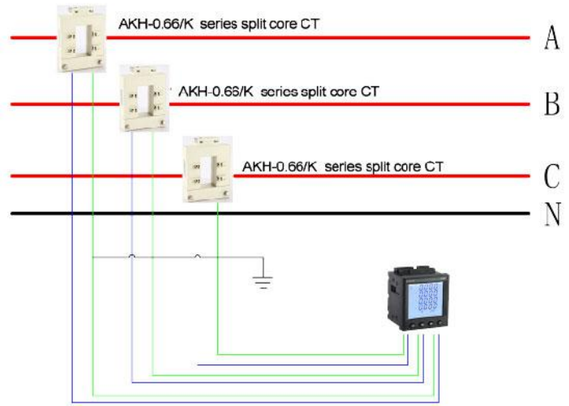
1.Application

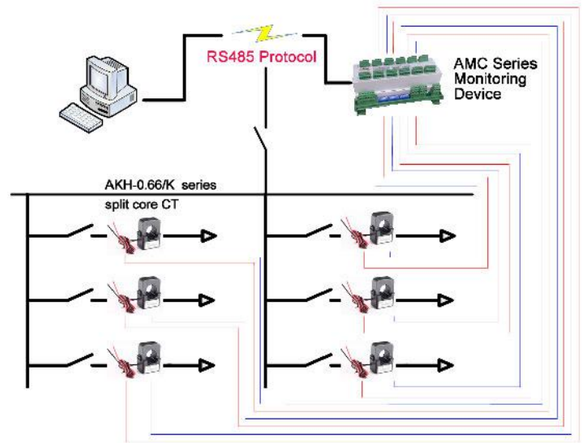
- Electricity renovation project:semiconductor、tyre、rubber、polycrystalline silicon
- Low voltage distribution system
- Power operations
- Data center

2.Structure









3.Advantage

- Small size
- High precision
- High capacity
- Easy installation

4.Product selection

Type	Dimension（mm）					Dia.(mm)		Error（mm）
	W	H	D	M	N	Φ1	Φ2	
K-Φ10	27	44	32	25	36	10	9	±1

Type	Dimension (mm)					Dia.(mm)		Error (mm)
	W	H	D	M	N	Φ1	Φ2	
K-Φ16	31	50	36	27	42	16	17	±1
K-Φ24	39	70.5	55	36	52	24.5	23	
K-Φ36	42	81.5	66	40	55.5	33	35	
K-Φ24	39	70.5	55	36	52	24.5	23	±1
K-Φ36	42	81.5	66	40	55.5	33	35	
K-Φ50	46.5	110	90	54	66.5	47	52	

Type	Ratio	Class (VA/Ω)		Dia. (mm)
		0.5	1	
AKH-0.66/K-Φ10	5A/1.25mA	10		Φ10
	(10-20) A/5mA	10		Φ10
	(40-60) A/5mA	10		Φ10
AKH-0.66/K-Φ16	(20-50) A/10mA	10		Φ16
	(40-100) A/20mA	10		Φ16
	100A/40mA	10		Φ16
AKH-0.66/K-Φ24	(60-200) A/20mA	10		Φ24
	(100-250) A/40mA	10		Φ24
	400A/100mA	10		Φ24
AKH-0.66/K-Φ36	(100-200) A/10mA	10		Φ36
	(200-400) A/20mA	10		Φ36
	(300-600) A/100mA	10		Φ36
	400A/40mA	10		Φ36
	600A/75mA	10		Φ36
AKH-0.66/K-Φ36	(150-200)A/5(1)A		1	Φ24
	(250-300)A/5(1)A		1.5	
AKH-0.66/K-Φ36	(300-400)A/5(1)A		1.5	Φ24
	(500-600)A/5(1)A	1.5		
AKH-0.66/K-Φ36	(600-700)A/5(1)A	2.5		Φ50
	(800-900)A/5(1)A	5		
	1000A/5(1)A	10		

Type	Dimension (mm)			Dia.(mm)		Error (mm)
	W	H	D	a	e	
K-30×20	90	114	40	22	32	±1
K-60×40	114	140	36	42	62	
K-80×40	122	162	40	42	82	
K-80×50	114	159	36	52	82	
K-80×80	144	159	36	82	82	
K-100×40	144	194	52	42	102	
K-120×60	164	214	52	62	122	
K-120×80	144	199	36	82	122	
K-130×40	144	224	52	42	132	
K-130×60	170	222	70	60	130	
K-140×60	164	234	52	62	142	
K-160×80	184	254	52	82	162	
K-200×80	184	294	52	82	202	

Type	Ratio (A)	Class	Burden (VA/Ω)
K-30×20	20-75/1A	1.0	0.2
	100-150/5 (1) A	1.0	1.0
	200/5 (1) A	1.0	1.5
	250-300/5 (1) A	0.5	1.5
	350-400/5 (1) A	0.5	2.5
K-60×40	250-300/5 (1) A	1	1.5
	350-450/5 (1) A	0.5	1.5
	500-800/5 (1) A	0.5	2.5
	1000-1250/5 (1) A	0.5	5
	1500-2000/5 (1) A	0.5	10
K-80×40	300-450/5 (1) A	0.5	2.5
	500-800/5 (1) A	0.5	5.0
	1000-2000/5 (1) A	0.5	10
	2500-3000/5 (1) A	0.2	10

Type	Ratio（A）	Class	Burden（VA/Ω）
K-80×80	250-300/5（1）A	1	1.5
	400-450/5（1）A	0.5	1.5
	500-800/5（1）A	0.5	2.5
	1000/5（1）A	0.5	5
K-100×40	1000-2000/5（1）A	0.5	10
	2500-3000/5（1）A	0.2	10
	4000-5000A/5（1）A	0.2	15
K-120×60	400-450/5（1）A	0.5	2.5
	500-800/5（1）A	0.5	5.0
	1000-2000/5（1）A	0.5	10
	2500-5000/5（1）A	0.2	10
K-120×80	500-800/5（1）A	0.5	2.5
	1000-1200/5（1）A	0.5	5
	1250-1500/5（1）A	0.5	7.5
K-130×40	1000-2000/5（1）A	0.5	10
	2500-5000/5（1）A	0.2	10
K-130×60	1000-2000/5（1）A	0.5	10
	2500-5000/5（1）A	0.2	15
K-140×60	1000-2000/5（1）A	0.5	10
	2500-3000/5（1）A	0.2	10
	4000-5000/5（1）A	0.2	15
K-160×80	1000-2000/5（1）A	0.5	10
	2500-3000/5（1）A	0.2	10
	4000-5000/5（1）A	0.2	15
K-200×80	1000-2000/5（1）A	0.5	10
	2500-3000/5（1）A	0.2	10
	4000-5000/5（1）A	0.2	15
K-P-120×60	300-400/5（1）A	5P10	2.5
	400/5（1）A		2.5
	500/5（1）A		3.75

Type	Ratio（A）	Class	Burden（VA/Ω）
K-P-120×60	600-800/5（1）A	5P10	5.0
	1000-1250/5（1）A		7.5
	1500-1600/5（1）A		10
	2000-3000/5（1）A		15
K-P-160×80	500-800/5（1）A		2.5
	1000-1500/5（1）A		5.0
	2000/5（1）A		10
	2500-3000/5（1）A		15
	4000-5000/1A		20
K-P-200×80	500-800/5（1）A		2.5
	1000-1500/5（1）A		5.0
	2000/5（1）A		10
	2500-3000/5（1）A		15
	4000-5000/5（1）A		20

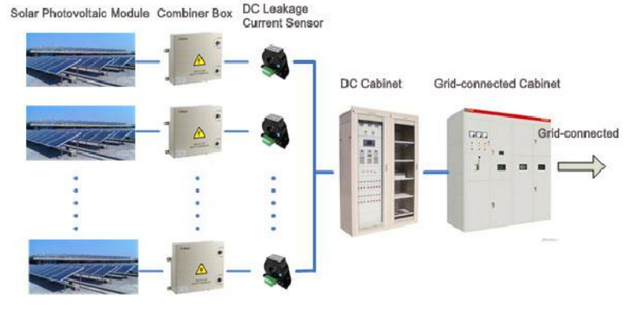
Hall Effect Current Sensor

1.Application

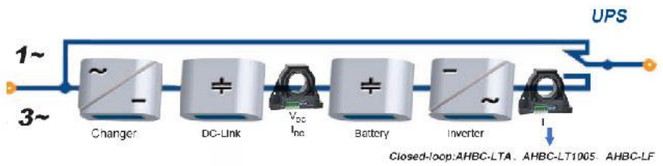
- Industrial control
- Energy and Automotive
- Automotive
- Railway

2.Structure

■ Photovoltaic



■ UPS



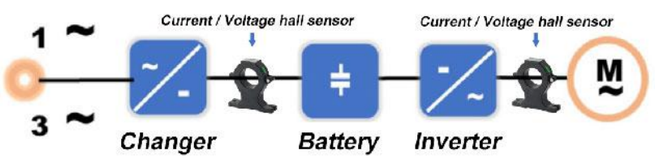
■ Solar and wind energy



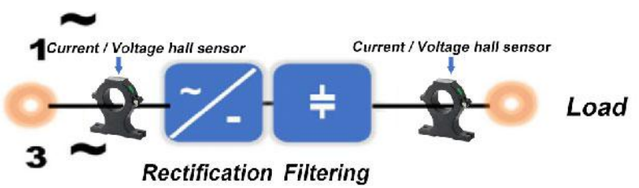
■ Electric welding machine



■ Motor servo system



■ Rectifier



3.Main Functions

Type	Function
Open loop Hall sensor	1.Class1 2.Easy installation 3.Input range width：50A-20000A 4.Output: 4V/5V/20mA/4-20mA
Closed loop Hall sensor	1.Class0.5 2.Input：10A-2000A 3.Fast response time≤1us 4.bandwidth：≤100kHz
Hall voltage transducer	1.Class0.5 2.Input：100-5000V 3.Fast response time≤200us 4.bandwidth：≤100kHz

4.Product selection

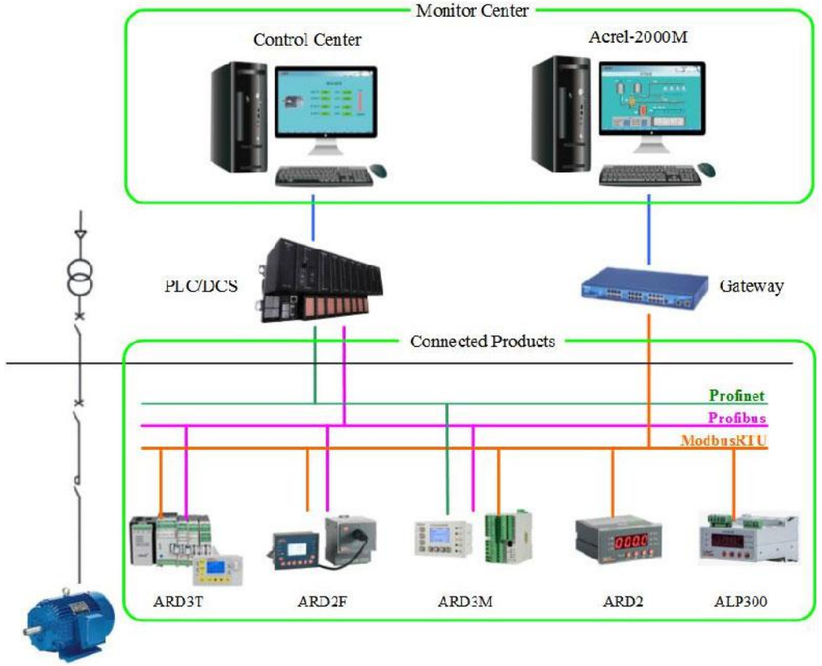
Type	Rated Input	Rated Output	Measuring Aperture	Power Supply	Application
AHKC-EKA	0-(50-500)A	5V/4V	20mm	±15V	1.Photovoltaic DC cabinet 2.photovoltaic inverter/wind inverter 3.The data center
AHKC-EKAA	DC 0-(50-500)A	4-20mA	20mm	12V/24V	
AHKC-BS	0-(50-500)A	5V/4V	20.5*10.5mm	±15V	
AHKC-F	0-（200-1000）A	5V/4V	43*13mm	±15V	
AHKC-K	0-（400-2000）A	5V/4V	64*16mm	±15V	
AHLC-LTA	100A-300A	50mA/100mA	20mm	±15V	UPS
AHBC-LF	2000A	400mA	/	±12V~±24V	1.UPS 2.photovoltaic inverter
AHBC-LT1005	1000A	200mA	/	±12V~±24V	UPS

Smart Motor Control And Protection Solution

1.Application

- Chemical Industry
- Power Plant
- Pump Station
- Mining Industry
- Metallurgical Industry

2.Structure



3.Main Functions

Protection function	Start timeout	External Fault	UnderPower
	Overload	Insulation Fault	tE time
	Underload	OverVoltage	Loss of pressure (anti-shake)
	Short circuit	Undervoltage	4-20mA input protection
	Blocking	Phase Failure	Ground
	Stall	Phase Sequence	Leakage
	Unbalance	OverPower	

Certification	CE
Communication	Modbsu-RTU、Modbus-TCP、Profibus-DP 、Profinet

4.Product selection

		ARD2/ARD2L	ALP300	ARD2F	ARD3	ARD3T	ARD3M
Application		Low voltage 0.4kv-1.14kv motor protection					
Protective function	Start timeout	√					
	Overload	√					
	Underload	√					
	Short circuit	√					
	Blocking	√					
	Stall	√					
	Unbalance	√					
	External Fault	■	■	■	√	√	√
	Insulation Fault						√
	OverVoltage		√	■	■	■	√
	Undervoltage		√	■	■	■	√
	Phase Failure	√	√	√	√	√	√
	Phase Sequence			■	■	■	√
	OverPower			■	■	■	√
	UnderPower			■	■	■	√
	tE time			■	■	■	√
	Loss of pressure (anti-shake)			■	■	■	■
	4-20mA input protection					■	
	Ground	√					
	Leakage	■					
Communication function	ModbusRTU	■	■	■	■	√	
	Double ModbusRTU			■	■	■	√
	Profibus DP			■	■	■	■
	Doubel Profibus DP						■
	Profinet						■
	Modbus TCP						■
Switch input		2	2	9	9	8	10
Relay output		4	4	5	5	7	6
Start control				■	√	√	√

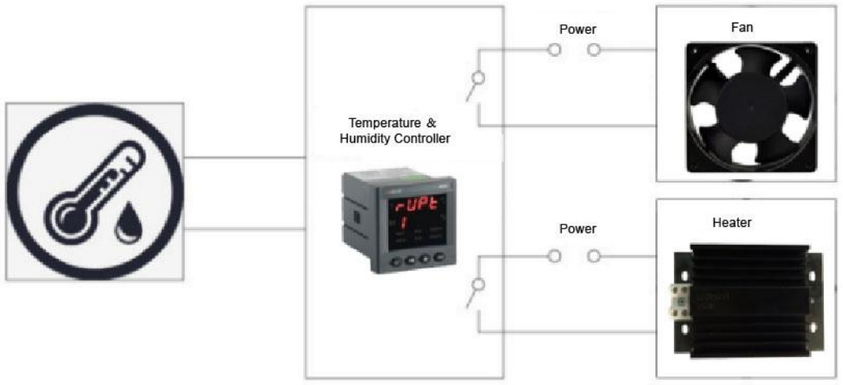
		ARD2/ARD2L	ALP300	ARD2F	ARD3	ARD3T	ARD3M
4-20mA analog output				■			
Record		■		■	■	√	■
Operational information record						√	√
Logic function						√	√
Parameter measurement	Three-phase current			√			
	Leakage current			■			
	Three-phase voltage			■	■	■	√
	Power, power factor			■	■	■	√
	Frequency			√	√	√	√
	Electric energy			■	■	■	√
	PTC/NTC			■	■	√	√
	4-20mA input					■	
	Temperature measurement module					■	

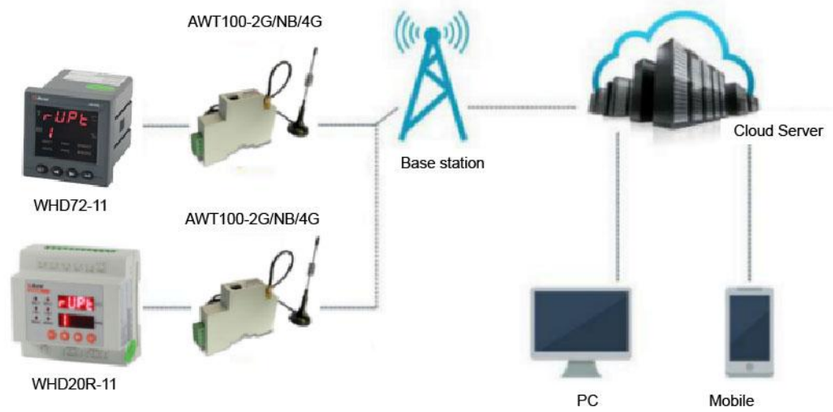
Temperature And Humidity Measurement Solution

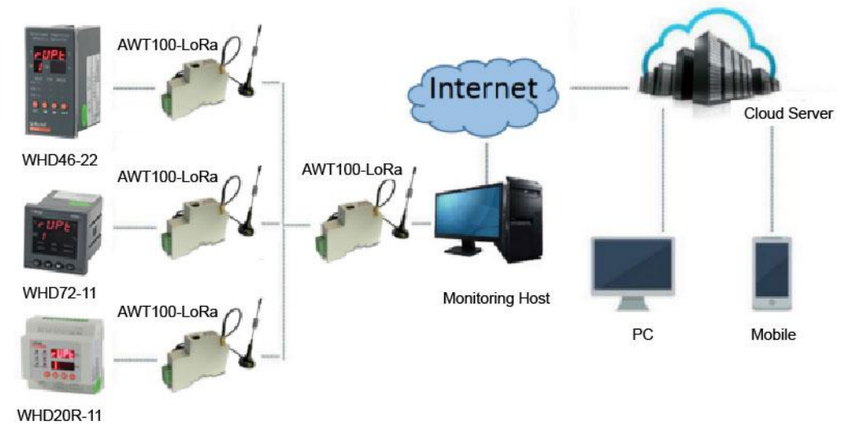
1.Application

- Mid/High voltage switchgear
- Distribution cabinet
- Box Transformer Substation
- Terminal box

2.Structure







3.Main Functions

- Automatic heating and dehumidification
- Communication：RS485(Modbus-RTU)
- Humidity measurement range： 0-99%RH
- Temperature measurement range： -40℃~99.9℃
- Working humidity of controller：≤95%RH
- Working temperaure of controller:-20℃~60℃
- LED Display
- Analog output
- Alarm

4.Product Selection

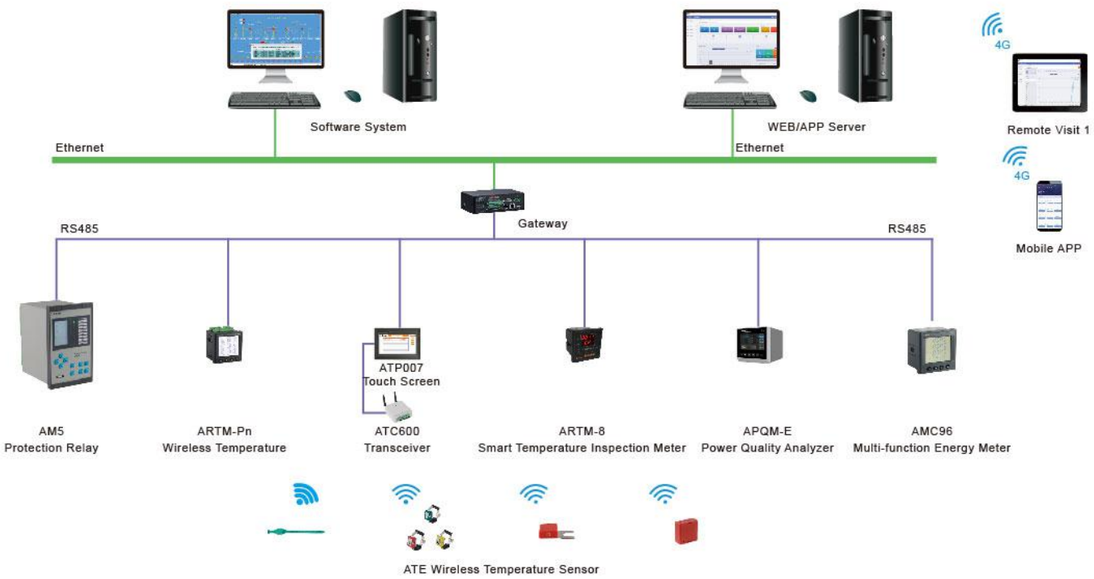
	Type	Functions
Temperature & Humidity Controller	WHD48	Panel mounted 1 channel RS485(Modbus-RTU) LED Display Temperature ±1℃ Humidity ±5%RH
	WHD72	Panel mounted 2 channels RS485(Modbus-RTU) LED Display Temperature ±1℃ Humidity ±5%RH
	WHD46	Panel mounted 3 channels RS485(Modbus-RTU) LED Display Temperature ±1℃ Humidity ±5%RH
	WHD20R	DIN rail mounted 2 channels RS485(Modbus-RTU) LED Display Temperature ±1℃ Humidity ±5%RH
Heater	ALW-100W	Operating Voltage:AC220V AC110V Rated Power:50-300W Insulation resistance:≥1000MΩ
Smart Gateway	AWT100	Working pressure：DC24V orAC/DC220V Baud Rate：4800bps、9600bps、19200bps、38400bps Communication：RS485

Power Monitoring System

1.Application

- State Grid
- Municipal Engineering
- Traffic Industry
- Petroleum
- Data Center
- Chemical Industry
- Industrial and Mining Enterprise
- Metallurgical Industry

2.Structure



3.Main Functions

■ Remote Measuring, Signal



■ Report



■ Curve



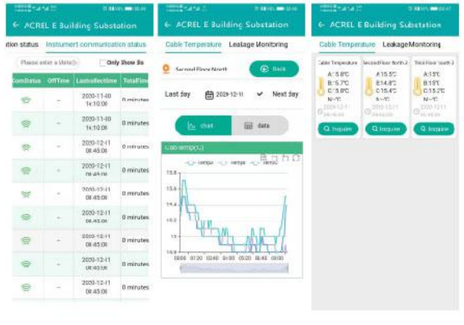
■ Fault recorder



■ Harmonic Monitoring



■ Web/APP



4.Product Selection

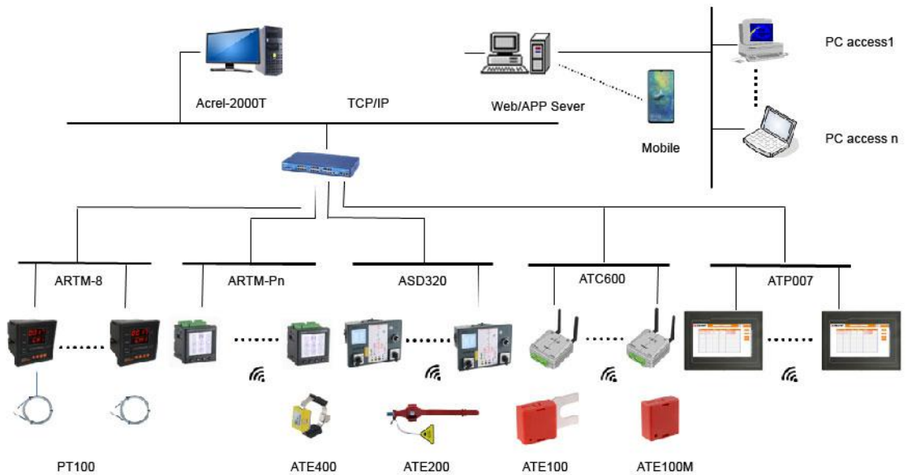
Name	Model	Functions
Protection Relay	AM5SE	Line Protection, Transformer Differential Protection Transformer Protection, Motor Differential Protection, Transformer Protection, Capacitor Protection Monitoring, Standby power Automatic Transfer Protection Monitoring, Voltage Transformer Supervision and Parallel Connection, Public measurement and control.
	AM5	Line Protection, Transformer Protection, Motor Protection, Capacitor Protection, Standby power Automatic Transfer Protection, Voltage Transformer Supervision, Public measurement and control, Undervoltage Standby power Automatic Transfer Protection.
	AM4	Line Protection, Transformer Protection,Voltage Transformer Supervision.
	AM3SE	Line Protection, Transformer Protection,Voltage Transformer Supervision.
	AM2SE	Line Protection, Transformer Protection
Advanced Power Device	APQM-E	Advanced power quality analysis and revenue-accurate.
Wireless Temperature Sensors	ATE100M	Temperature measurement of moving contacts and fixed contacts of breaker, cable joints and bus bar.
	ATE100	
	ATE200	
	ATE400	
Wireless Temperature Measurement	ATC450-C	Temperature Data Transmission, 1 RS485.
	ATC600-C	
Multi Channel Temperature Controller	ARTM-8	Transformer, motor temperature measurement, 1 RS485, 2DO.
Wireless Temperature Measuring Equipment	ARTM-Pn	Temperature acquisition and display, 1 RS485, 2 DI, 2 DO.

Wireless Temperature Monitoring System

1.Application

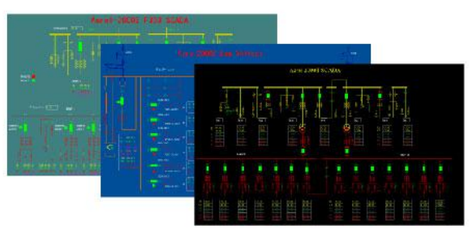
- State Grid
- Municipal Engineering
- Traffic Industry
- Petroleum
- Data Center
- Chemical Industry
- Industrial and Mining Enterprise
- Metallurgical Industry

2.Structure

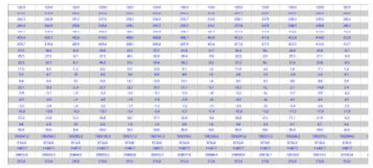


3.Main Functions

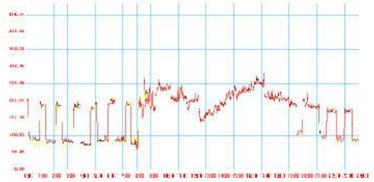
- Wireless temperature monitor
- Temperature display



- Report



- Curve



- Web/APP





4.Product Selection

Model	Functions
ATE400	Small size;Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,15s;CT-powered,more than 5A starting current; Widely temperature measuring range, -40℃~125℃.

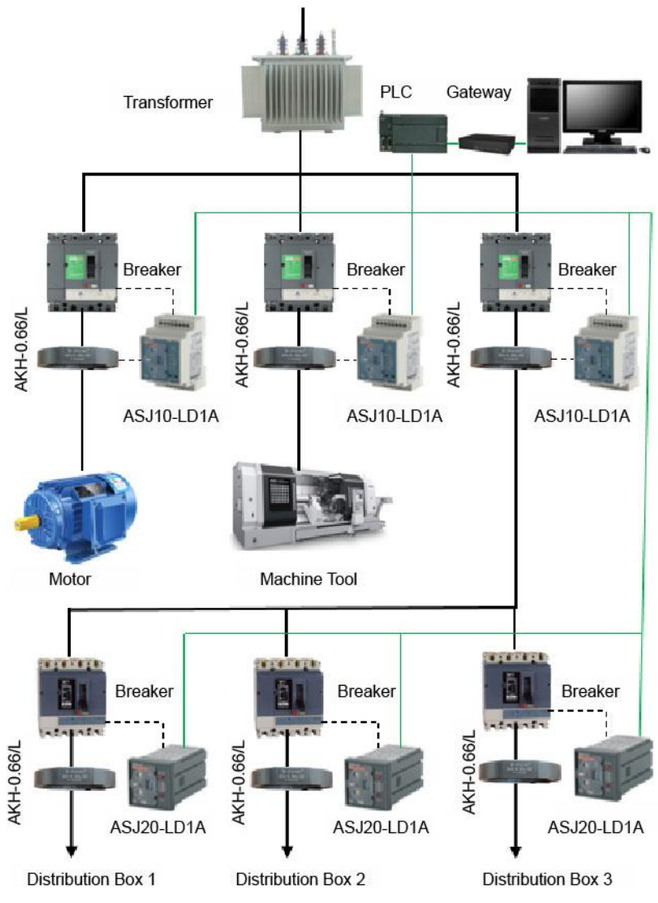
Model	Functions
ATE200	Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,25s;Battery -powered,more than 5 years; Widely temperature measuring range, -40℃~125℃.
ATE100	Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,25s;Battery -powered,more than 5 years; Widely temperature measuring range, -40℃~125℃.
ATE100M	Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,25s;Battery -powered,more than 5 years; Widely temperature measuring range, -40℃~125℃.
ATE200P	Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,25s;Battery -powered,more than 5 years; Widely temperature measuring range, -40℃~125℃;IP68.
ATE100P	Wireless transmit;Wireless transmission distance, 150 meters; Fase sampling frequency,25s;Battery -powered,more than 5 years; Widely temperature measuring range, -40℃~125℃;IP68.
ATC450-C	Wireless temperature measurement; Measuring 60 points; 1 RS485 serial communication, Modbus-RTU; Power supply adapt with DC24V.
ATC600-C	Wireless temperature measurement;Measuring 240 points; 1 RS485 serial communication, Modbus-RTU;2 alarm relays; Power supply adapt with AC/DC220V,AC/DC110V.
ARTM-Pn	Wireless temperature measurement, 60 points;U, I, P, Q, f, Ep, Eq measurement; 4 digital inputs;2 alarm relays, high temperature alarm;LCD display;Power supply adapt with AC220V, DC220V, DC110V, AC110V;1 RS485 serial communication, Modbus-RTU.
Acrel-2000T/A	Wireless temperature measurement, 240 points;Power supply adapt with AC220V, DC220V, DC110V, AC110V;Temperature Curve;High temperature alarm, buzzer; 1 RS485 serial communication, Modbus-RTU; 1 Ethernet communication.

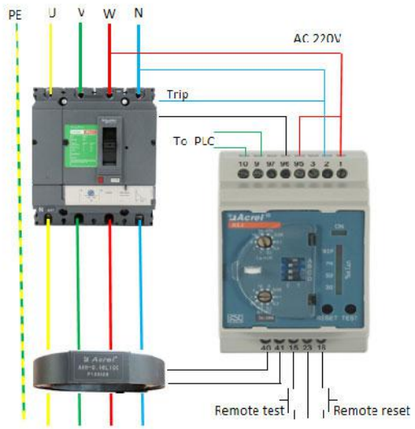
Residual Current Operated Relay

1.Application

- Subway
- large gymnasium
- Power plant
- Petrochemical industry
- Pharmaceutical industry
- Mining industry
- Photovoltaic new energy

2.Structure





■ Collect switch signals by PLC, and upload to monitoring system



■ RS485 connection



➢ 3.Main Functions

◆ AC contactor or circuit breaker, earth fault protection and fire protection.

◆ Adjustable range: 0.03A to 30A.

◆ Adjustable range: 0 to 10s.

◆ 2DO (warning and alarm)

◆ Manual, auto and remote reset

➢ 4.Product Selection

Model	Installation	Functions
ASJ10-LD1C	DIN35mm	Monitoring of Type AC leakage current;Warning at 50% I△n and alarm at I△n;Adjustable I△n from 0.03 to 0.5A; Adjustable time delay from 0.1 to 0.5s;One warning relay, one alarm relay;Local and remote “TEST”, “RESET”.
ASJ10-LD1A		Monitoring of Type A leakage current;LED bar graph display leakage currents;Adjustment of IΔn from 0.03 to 30 A; Adjustment of time delay 0 to 10 s;2 configurable relays; Local and remote “TEST”, “RESET”
ASJ10L- LD1A		Monitoring of Type A leakage current;Adjustment of IΔn from 0.03 to 30 A;Adjustment of time delay 0 to 10 s;2 configurable relays;Settable toroid disconnect alarm;Adjustment of pre-alarm value;Adjustment of auto rest value;RS485 Optional function;Local and remote “TEST”, “RESET”; SOE fault record
ASJ20-LD1C		Monitoring of Type AC leakage current;Warning at 50% I△n and alarm at I△n;Adjustment of IΔn from 0.03 to 0.5 A; Adjustable time delay from 0.1 to 0.5s;One warning relay, one alarm relay;Local and remote “TEST”, “RESET”
ASJ20-LD1C		Monitoring of Type A leakage currentLED bargraph display leakage currents;Adjustment of IΔn from 0.03 to 30 A; Adjustment off time delay 0 to 10 s;2 configurable relays; Local and remote “TEST”, “RESET”

■ Accessories: AKH-0.66/L series residual current transformer

Model	Rated Load	Ratio	Class	Φ (mm)
L-35	16~100A	5A/5mA	0.5	35
L-70	100~250A	5A/5mA	0.5	70
L-105	250~400A	5A/5mA	0.5	105
L-45	16~100A	5A/5mA	1	45
L-80	100~250A	5A/5mA	1	80
L-100	250~400A	5A/5mA	1	100
L-150	400~800A	5A/5mA	1	150
L-200	800~1500A	5A/5mA	1	200

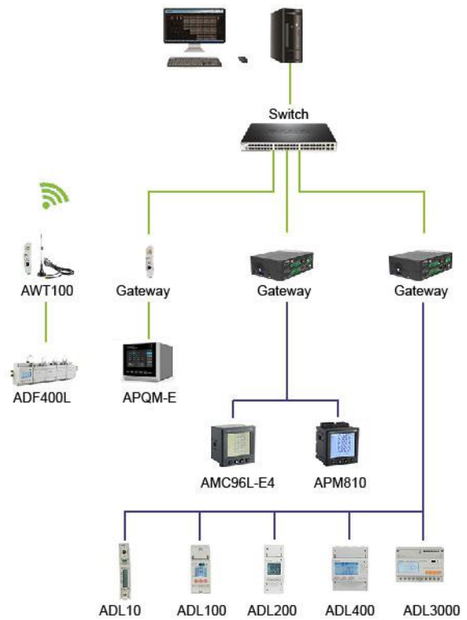
Model	Rated Load	Ratio	Class	Φ (mm)
L-80×50II	16~100A	5A/5mA	0.5	82×52
L-100×50II	16~100A	5A/5mA	0.5	103×55
L-130×50II	100~200A	5A/5mA	0.5	135×55
L-150×130II	100~300A	5A/5mA	0.5	150×133
L-180II	100~200A	5A/5mA	0.5	182×35
L-200×50II	250~400A	5A/5mA	0.5	202×61
L-260×100II	450~800A	5A/5mA	0.5	265×104
L-170 × 30	100~200A	5A/5mA	1	172×34
L-210×160	450~800A	5A/5mA	0.5	210×160

Energy Management System

1.Application

- State Grid
- Municipal Engineering
- Traffic Industry
- Petroleum
- Data Center
- Chemical Industry
- Industrial and Mining Enterprise
- Metallurgical Industry

2.Structure

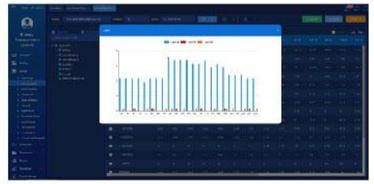


3.Main Functions

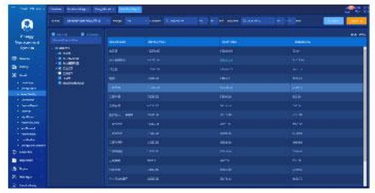
■ Overview of Energy Consumption



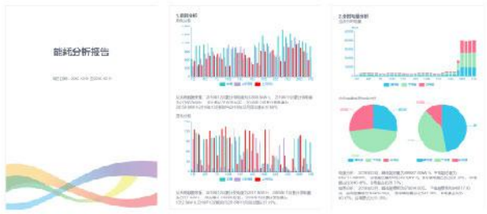
■ Statistics of Energy Consumption

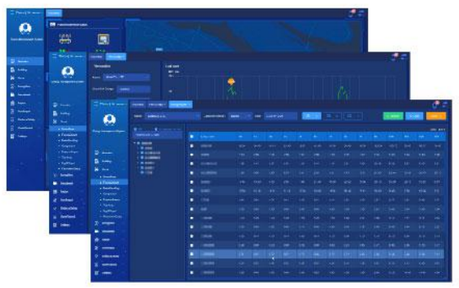


■ Data Reading



■ Analysis Report on Energy Consumption







4.Product Selection

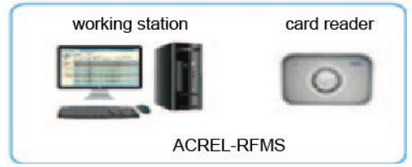
Application	Type	Functions
Gateway	AWT100	Ethernet Gateway， For simple, cost-effective serial-to-Ethernet connectivity
	Anet	Smart IoT Gateway，Embedded Linux platform, high performance, low power consumption,real-time monitoring, Convenient management
Advanced power quality analysis	APQM-E	Advanced power quality analysis and revenue-accurate
Energy meter	AMC96L-E4	Installation:panel mountedI,U,F,P,Q,S,PF,E; Standard RS485 port and Modbus RTU protocol
	APM810	Installation:panel mountedI,U,F,P,Q,S,PF,E; Standard RS485 port and Modbus RTU protocol 2xDI, 2xDO Power quality Demand
	ADL10	DIN rail mountI,U,F,P,Q,S,PF,E;63A direct current input 8-digit LCD Display Standard RS485 port and Modbus RTU protocol
	ADL100-ET	DIN rail mountI,U,F,P,Q,S,PF,E;63A direct current input 8-digit LCD Display Standard RS485 port and Modbus RTU protocol
	ADL200	DIN rail mountI,U,F,P,Q,S,PF,E;80A direct current input 8-digit LCD Display Standard RS485 port and Modbus RTU protocol
	ADL400	DIN rail mountI,U,F,P,Q,S,PF,E;80A Direct Input or 5A CT Input 8-digit LCD Display Power quality monitoring Standard RS485 port and Modbus RTU protocol
	ADL3000-E	DIN rail mountI,U,F,P,Q,S,PF,E;80A Direct Input or 5A CT Input 8-digit LCD Display Power quality monitoring Standard RS485 port and Modbus RTU protocol
	ADF400L	DIN rail mount 36 circuits single phase 80A direct inputOr 12 circuits 3 phase 80A direct input Or 12 circuits 3 phase 5A CT Input I,U,F,P,Q,S,PF,E;Standard RS485 port and Modbus RTU protocol

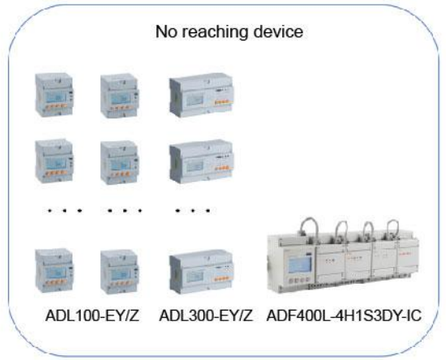
Prepaid Solution

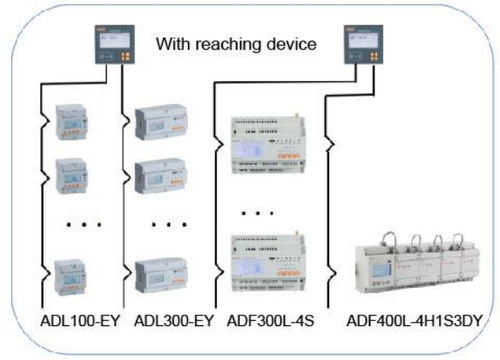
1.Application

- Chain Stores
- Chain Hotels
- Properties
- University Dormitories
- Intelligent Communities

2.Structure

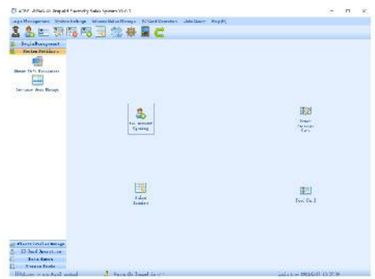




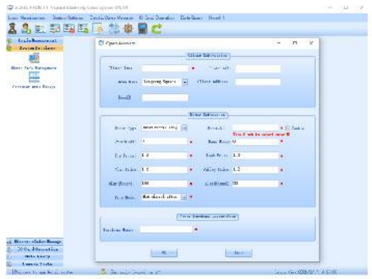


3.Main Functions

- Card recharge software overview



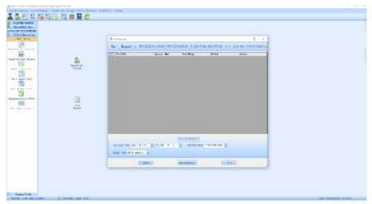
■ Open account



■ Electricity recharge



■ Electricity recharge report



➢ 4.Product Selection

Type	Functions
ADL100-EY	Single phase；10(60)A Direct connect internal relay；Remote recharge
ADL300-EY	Three phase；10(80)A Direct connect，internal relay；1(6)A CT connect, out relay；Remote recharge
ADL100-EY/Z	Single phase；10(60)A Direct connect internal relay；RF card or remote recharge
ADL300-EY/Z	Three phase；10(80)A Direct connect internal relay；RF card or remote recharge
ADK100-EY/RF	Single phase；10(60)A Direct connect Out relay；RF card
ADL300-EY/RF	Three phase；10(80)A Direct connect out relay；RF card
ADF300L-RF	RF card Recharge device
M&W	Card reader
Acrel-RFMS	Prepaid recharge software

Photovoltaic System Solutions

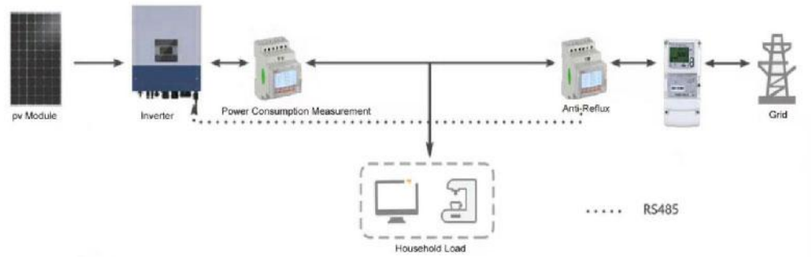
1.Distributed Photovoltaic Solutions

➢ 1.1 Application

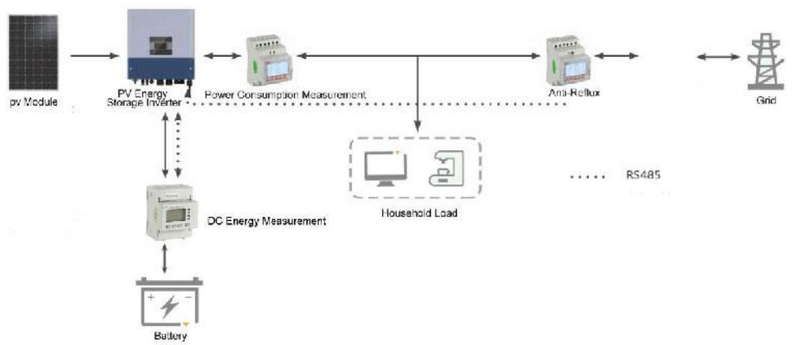
- Backflow prevention
- Energy storage
- Bidirectional energy metering

➢ 1.2 Structure

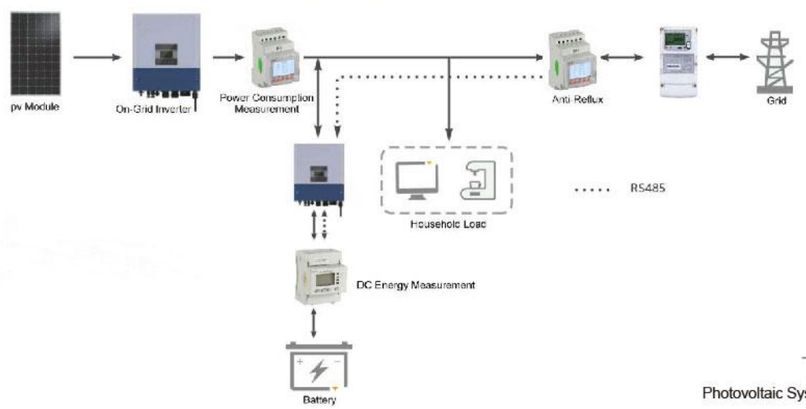
■ Solution for PV anti-backflow



■ Solution for PV DC coupled energy storage



■ Solution for photovoltaic AC coupled energy storage



➢ 1.3 Main Functions

Measure power generation and the use of electricity;

Data refresh rate: 250ms;

Split core CT, 300A current;

Communication: RS485 and grid-connected inverter or energy storage inverter.

■ DJSF1352-RN DC Energy Meter

Accuracy: 1, voltage output: ±12V;

Communication: infrared and RS485 communication, Modbus-RTU and 645 protocol;

DIN rail installation;

Support hall sensor or shunt input.

➢ 1.4 Product Selection

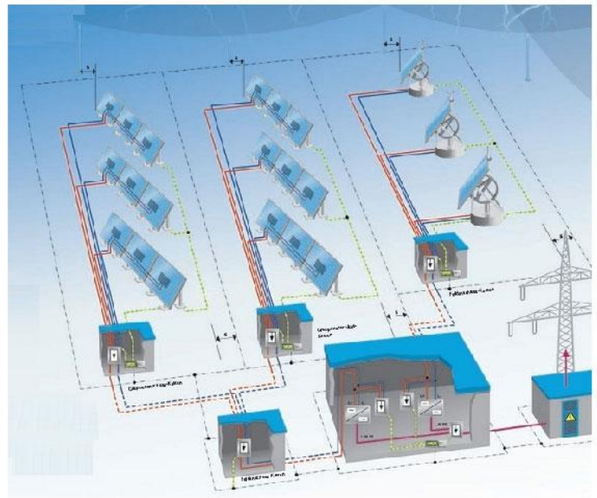
Application	Model	Functions
Single phase	ACR10R-DxxTE	Current/voltage/frequency/power factor;Active power/reactive power/ apparent power;Four quadrant electric energy measurement; Modbus(RS485)
Two phase	AGF-AE-D	Current/voltage/frequency/power factor;Active power/reactive power/ apparent power;Four quadrant electric energy measurement; Suport Sunspect protocol(RS485)
Three phase	ACR10R-DxxTE4	Current/voltage/frequency/power factor;Active power/reactive power/ apparent power;Four quadrant electric energy measurement; Maximum demand;Multiple rate electric energy measurement Total harmonic content/ subharmonic（2-31 times）;Modbus(RS485)

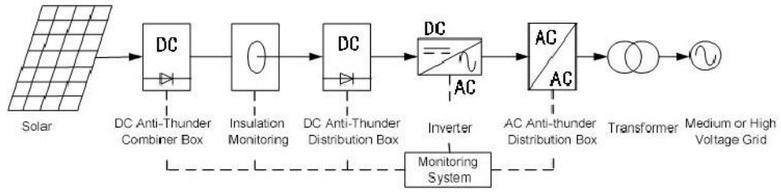
2.Centralized PV Solutions

➢ 2.1 Application

◆ Centralized photovoltaic confluence collection

➢ 2.2 Structure





➢ 2.3 Main Functions

Current specification: 20A, perforation connection,3 DI

Temperature measurement Busbar voltage measurement: DC 1500V,LCD display

■ APQM Power Quality Monitoring Device

Measurement of electrical parameters, harmonics, inter-harmonics, voltage fluctuation, flicker;

Monitoring of voltage swell, voltage sag, voltage interruption;

Statistics of power quality limit times, voltage qualification rate, and form the report.

➢ 2.4 Product Selection

Type	Functions
AGF Series Confluence Acquisition	Primary current is connected in through perforation. Easy installation, high safety;With Hall sensor, the max isolation measuring current 20A; Voltage measurement range for Bus bar is up to DC1.5kV;LED display, fit for checking and testing operation in wide-temperature or outside environment; With the function of inner temperature measurement for real-time measurement of the inner temperature of combiner box; With RS485 Modbus RTU ; More options of power supply; Compatible with din rail installation and baseboard fixation installation, small dimension saving more box space.

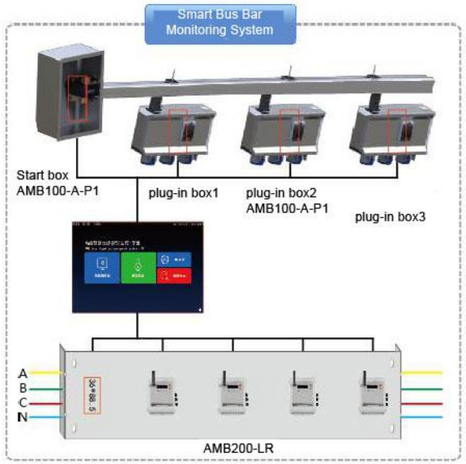
Smart Busway Monitoring Solution

1.Application

- Connection between low voltage cabinet
- Incoming line system at voltage transformer connection
- Power distribution in factory
- Power supply in high buildings
- Device with big current

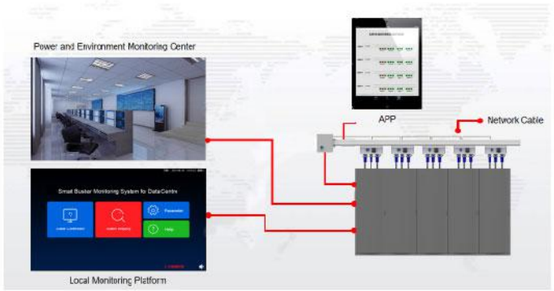
2.Structure

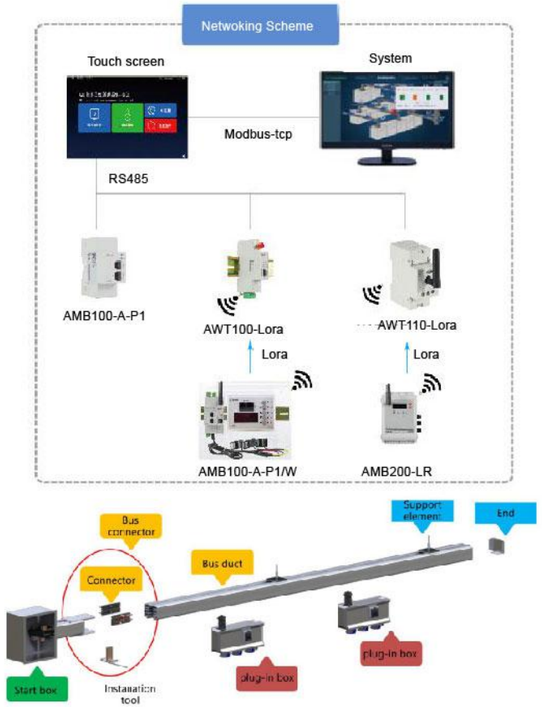
■ Smart Bus Bar Monitoring System





■ Networking Scheme





3.Main Functions

- AMB100 or AMB110 is usually installed in the busbar start box and plug-in box
- Measurement:AC or DC busbar voltage,current,harmonics and other parameters.
- Realize temperature monitoring of the busbar plug interface
- AMB200 is usually installed at the connector of the dense AC busbar,and can monitor temp.

And humidity at the connector.

- Communication:LoRa or RS485

4.Product Selection

Name	Type	Functions
HMI	ATP010kt	10 inch touch screen; Real-time monitoring and display voltage,current, power,energy,power quality,switch status,wave curve,etc. of the busbar; monitoring device alarm,communication and other parameters can be configured on the screen; 2 RS485 and 1 Ethernet,and data can uploaded by RS485 or RJ45
AC start box monitoring module	ATP010kt	Installation:DIN Rail 35mm; Measurement:3 phase electrical parameters, 2DI2DO,8 temp.,1 leakage current,1 temp. and humidity; Communication: 1 in 1 out type RJ45 interface(Modbus protocol)
AC plug-in box monitoring module	AMB110-A-P1	Installation:DIN Rail 35mm; Measurement:3 phase electrical parameters, 2DI2DO,4 temp.,1 leakage current,1 temp. and humidity; Communication: 1 in 1 out type RJ45 interface(Modbus protocol)

Name	Type	Functions
DC start box monitoring module	AMB100-D-P1	Installation:DIN Rail 35mm; Measurement:1 DC circuit electrical parameters,4DI2DO,8 temp.,1 leakage current,1 temp. and humidity; ±12V output to power hall current sensor; Communication:1 in 1 out type RJ45 interface(Modbus protocol)
DC plug-in box monitoring module	AMB110-D-P1	Installation:DIN Rail 35mm; Measurement:3 DC circuits electrical parameters,4DI2DO,4 temp.,1 leakage current,1 temp. and humidity; ±12V output to power hall current sensor; Communication:1 in 1 out type RJ45 interface(Modbus protocol)
AC bus connector temp measurement device	AMB200-LR AMB200-C	Installation: Fixed on the cover of the busbar connection; Contact temp. measurement,measure and display temp. of 4 AC busbars; Communication:RS485 or LoRa
DC outgoing line hall effect current sensor	AHKC-BS	Current ratio: 100A/5V Common Specification: 100A/5V

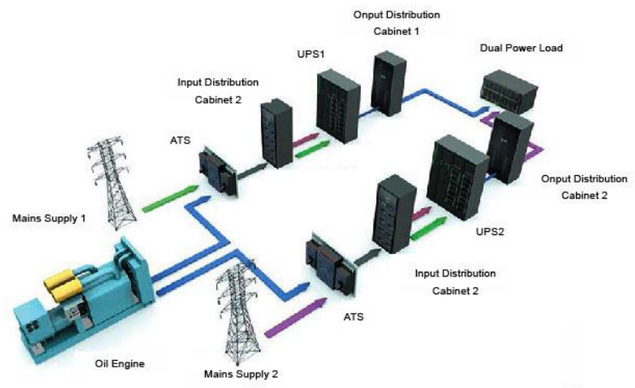
Precision Distribution Monitoring Solution For IDC

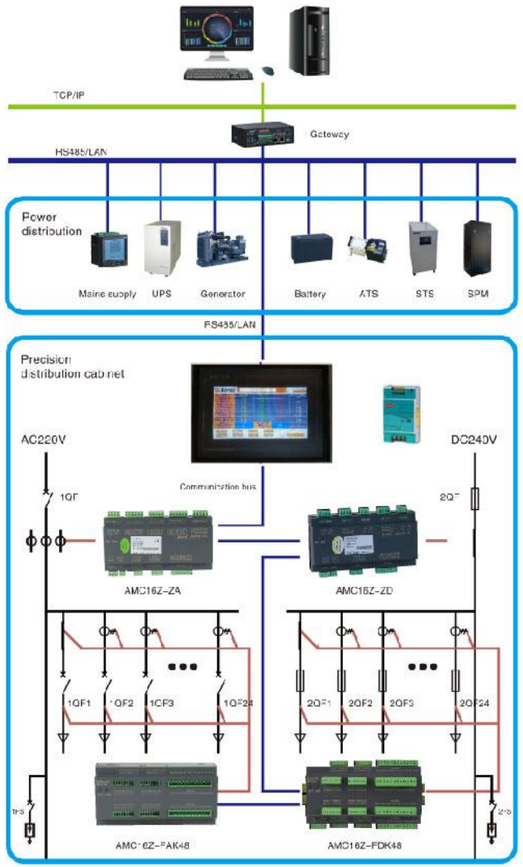
1.Application

- Power monitoring at the end of data center
- Multi channel power distribution box of the floor

2.Structure

Monitoring System for Data Centre Energy Management





3.Main Functions

◆ Incoming line and outgoing line circuits independent monitoring modules

◆ Can measure up to 2 incoming line circuits and up to 192 outgoing line circuits current,voltage, power,energy and power quality.

◆ Data centralized monitoring and display by HMI and data is uploaded to power and environment monitoring system through RS485.

◆ For high voltage DC 240V or 336V system,insulation monitoring module can be added to monitor ground insulation resistance of main bus.

◆ DC24V power supply for touch screen and outgoing line monitoring module(power supply from main module output)

◆ Communication:monitoring device by RS485,touch screen by RS485 or RJ45

◆ Certificate:CE

4.Product Selection

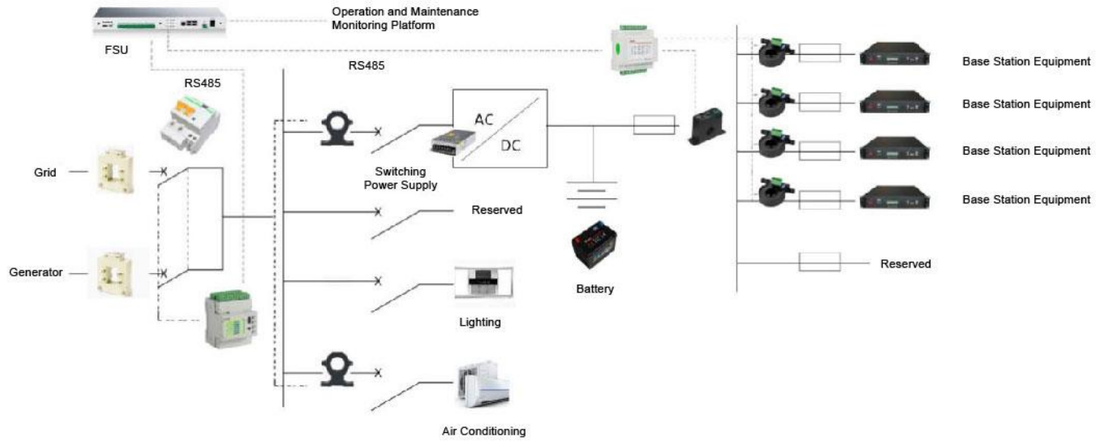
Name	Type	Functions
HMI	ATP007kt ATP010kt	7 or 10 inch touch screen；Real-time monitoring and display voltage, current,power,energy,power quality,switch status,waveform curve and so on；monitoring device alarm,communication and other parameters can be configured on the screen； 2 RS485 and 1 Ethernet interface, and data can be uploaded by RS485 or RJ45.
AC incoming line monitoring module	AMC16Z-ZA	Installation:DIN rail 35mmMeasurement:1+2 independent 3 phase circuits, 6DI2DO,2 leakage current,1 temp. and humidity；With DC 24V output power supply for outgoing line module and touch screen；Communication:RS485 Modbus RTU
AC outgoing line monitoring module	AMC16Z-FAK24 AMC16Z-FAK48	Installation:DIN rail 35mm;Can measure up to 16 circuit 3 phase or 48 circuit single phase;DC24V power supply;Communication:RS485 modbus RTU
AC outgoing line current transformer	AKH-0.66W	Current ratio：100A/50mA;Common Specification: 100A/50mA
DC incoming line monitoring module	AMC16Z-ZD	Installation:DIN Rail 35mm;Measurement:1+2 independent circuits, 6DI2DO,1 temp. And humidity;With DC 24V output power supply for outgoing line module and touch screen;Communication:RS485 modbus RTU
DC outgoing line monitoring module	AMC16Z-FDK24 AMC16Z-FDK48	Installation:DIN Rail 35mm；Can measure up to 48 circuits DC outgoing line；DC24V power supply；Communication:RS485 modbus RTU
DC incoming line insulation monitoring module	AMC16Z-ZJY	Installation:DIN Rail 35mm；Measure 1+2 independent DC circuit ground insulation resistance of main bus；DC24V power supply；Communication:RS485 modbus RTU
DC outgoing line insulation monitoring module	AMC16Z-FJY	Installation:DIN Rail 35mm；Measure 24 circuits ground insulation resistance of DC outgoing line
DC outgoing line hall effect current sensor	AHKC-BS	Current ratio：100A/5V；Common Specification: 100A/5V

Energy Consumption Monitoring Solution For Base Station

1.Application

- Mobile telecom
- Telecommunication carrier
- China unicom

2.Structure



3.Main Functions

- Measurement:multi circuits voltage,current,power,energy and other electrical parameters.
- Communication:RS485 Modbus-RTU,NB or 4G
- Certificate:With CE and IEC
- Accuracy:0.5s or 1

4.Product Selection

Name	Type	Functions
AC single circuit energy meter	AMC96L-E4/KC	Installation:panel mounted；1 circuit 3 phase input 220V/5A 50/60HZ；Measurement:voltage,current,power,energy and other parameters；Communication:RS485 Mobus RTU

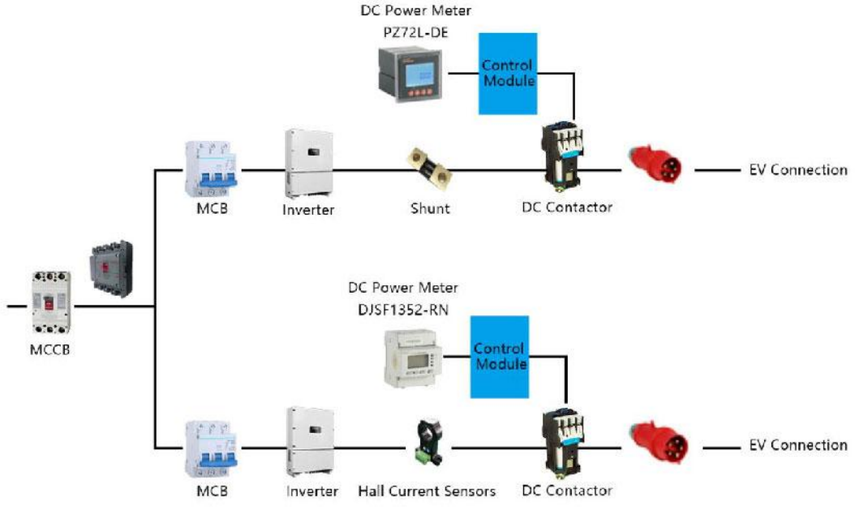
Name	Type	Functions
Multi circuits AC energy meter	AMC96N-4E3	Installation:panel mounted;4 circuits 3 phase or 12 circuits single phase AC input,external CTs,50/60HZ;Measurement:voltage,current,energy and other parameters;Communication:RS485 Mobus RTU
Multi circuits AC energy meter	DTSD1352-xSyD	Installation:DIN Rail 35mm;X circuits 3 phase and Y circuits single phase AC input,external CTs,50/60Hz;Measurement:voltage,current,power,energy and other parameters;Communication:RS485 Modbus RTU
Multi circuits DC energy meter	AMC16-DETT	Installation:DIN Rail 35mm； 6 circuits DC input,-48V voltage input,current input by 5V output hall effect current sensor； Measurement:DC voltage, current,power,energy and other parameters； With ±12V inner power supply for hall effect current sensor； Communication:RS485 Modbus RTU
Wireless energy meter	ADW350	Installation:DIN Rail 35mm;3 circuits DC input or 1 circuit 3 phase AC input;Measurement:voltage,current,power,energy and other parameters; Communication:NB or 4G
Hall Sensor	AHKC	Ratio：1000A/5V;Common Specification: 1000A/5V

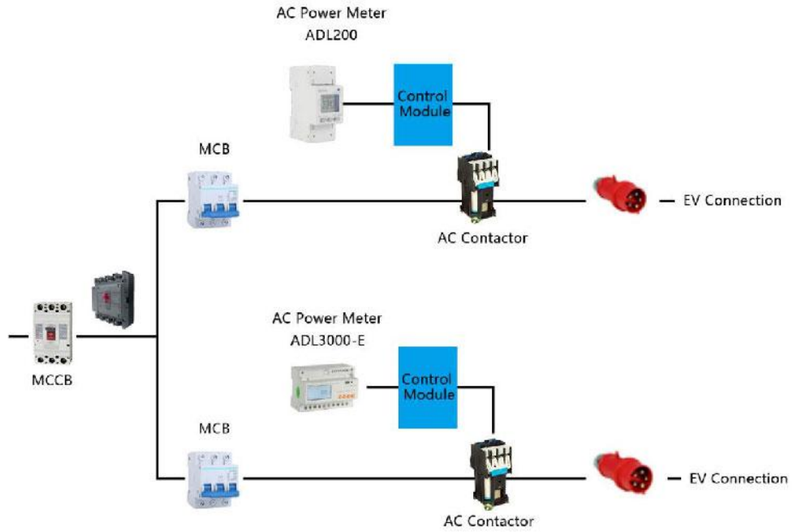
Charging Pile Energy Management System Solution

➢ 1.Application

- ◆ AC and DC charging piles

➢ 2.Structure





➢ 3.Main Functions

- ◆ Energy Accuracy: Class 0.5S or Class 1
- ◆ Optional multi tariff
- ◆ With CE or IEC certificed

➢ 4.Product Selection

Item	Type	Functions
Single Phase AC Energy Meter	ADL10-E	Din rail mounted; single-phase 60A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy; RS485 communication (Modbus protocol).
	ADL100-ET	Din rail mounted; single-phase 60A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy; RS485 communication (Modbus protocol). energy pulse output; optional multi tariff.
	ADL200	Din rail mounted; single-phase 80A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy, etc.; RS485 communication (Modbus protocol); energy pulse output; optional multi tariff.

Item	Type	Functions
Three Phase AC Energy Mete	ADL400	Din rail mounted; three-phase 80A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy; RS485 communication (Modbus protocol); energy pulse output; optional multi tariff.
	ADL3000-E	Din rail mounted; three-phase 80A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy; RS485 communication (Modbus protocol); energy pulse output; optional multi tariff.
DC Energy Meter	PZ72(L)-DE	Din rail mounted; single-phase 80A, 50/60Hz input; measurement of electrical parameters such as voltage, current, power, energy, etc.; RS485 communication (Modbus protocol); energy pulse output; optional multi tariff.
	DJSF1352	Wall mounted, measure DC voltage, current, power; measure DC energy; direct connect voltage 0-1000V; current measurement supports 75mV output of shunt, supports 0-5V, 0-20mA output of hall; RS485(Modbus protocol)
	DJSF1352-RN	Din-rail mounted, support optional two-channel DC voltage, current, power measurement; measure DC energy; direct connect voltage 0-1000V; current measurement support shunt 75mV output, support Hall sensor 0-5V, 0-20mA output; RS485 communication (Modbus protocol)
Shunt	AFL-T	Common Specification: 300A/75mV
Hall Sensor	AHKC	Common Specification: 1000A/5V

Equipment Sets

ANSVG Static Var Generator

1.Model Description

AN SVG 100 - 400 / □ □

- G:Cabinet B:Wall-mounted C:Module
- Wiring method: A:3P3W B:3P4W
- Voltage level
- Compensation capacity: 30-100kvar
- Static var generator



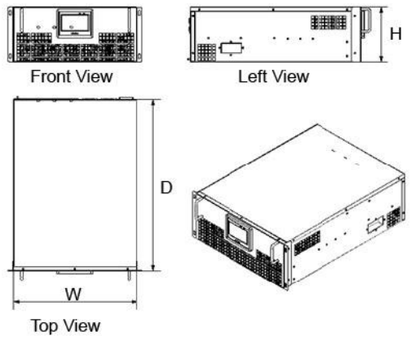


2.Technical Parameter

Rated voltage	380V ±15%
Rated frequency	50Hz ±2%
Compensation method	Linear compensation
Response time	Full response time≤5ms,Instantaneous response time≤100μs
Switching frequency	20kHz
Compensation effect	≥0.99,Compensates for capacitive reactive and inductive reactive
Self-loss	≤2%
Efficiency	≥98%
Total harmonic compensation rate	≥ 97%
Cooling method	Forced air cooling
Noise	≤60dB
Operation temperature	-10℃～+45℃
Storage temperature	-25℃～+60℃
Relative humidity	≤95% (No condensation)
Altitude	≤1000m
Protection level	IP20
Communication	RS485(Modbus-RTU) or Ethernet(Modbus-TCP)
Module capacity	30kvar,50kvar,75kvar or 100kvar
Working mode	Automatic or manual
Overload protection	Automatic limit to rated current output

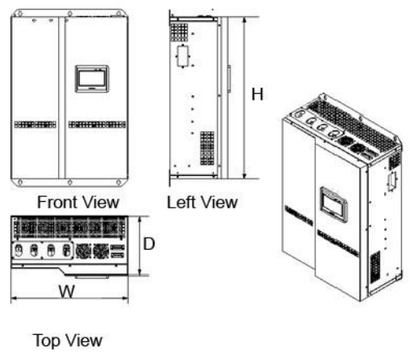
3.Structure

◆ Modul



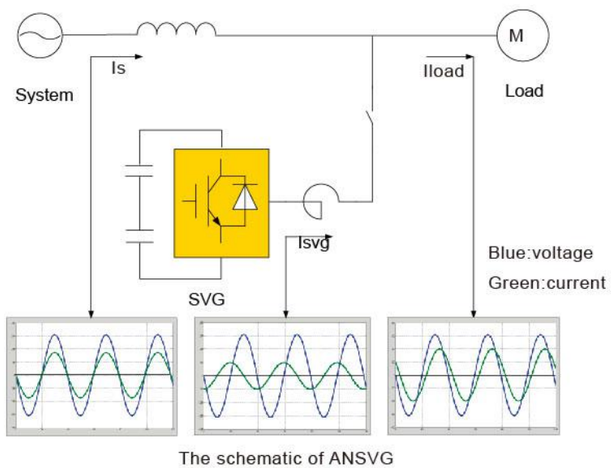
Capacity	Module Size(W*D*H)(mm)	Weight(kg)
30kvar	480*440*130	25
50kvar	450*622*201	35
75kvar	450*622*201	35
100kvar	500*533*280	50

◆ Wall-mounted



Capacity	Module Size(W*D*H)(mm)	Weight(kg)
30kvar	480*130*440	25
50kvar	450*201*622	35
75kvar	450*201*622	35
100kvar	500*280*533	50

4.Schematic



The schematic of ANSVG

ANAPF Active Power Filter

1.Model Description

AN APF 100 - 380 / □ □ □

- C:Grid side L:Load side
- G:Cabinet B:Wall-mounted C:Module
- Wiring method: A:3P3W B:3P4W
- Voltage level
- Harmonic compensation current: 30-600A
- Active Power Filter

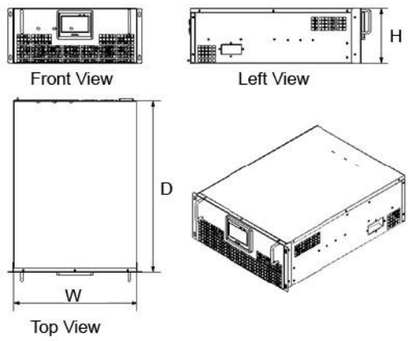


2.Technical Parameter

Wiring method	Three-phase three-wire,Three-phase four-wire
Rated voltage	380V ±15%
Rated frequency	50Hz ±2%
Compensation method	Linear compensation
Response time	Full response time≤5ms,Instantaneous response time≤100μs
Switching frequency	20kHz
Function setting	Compensate for harmonics only, compensate for reactive power only, compensate for both harmonics and reactive power
The frequency of harmonic compensation	2-51st
Self-loss	≤2.5%
Efficiency	≥97.5%
Total harmonic compensation rate	≥ 97%
Cooling method	Forced air cooling
Noise	≤60dB
Operating temperature	-10℃～+45℃
Storage temperature	-25℃～+60℃
Relative humidity	≤95%(No condensation)
Altitude	≤1000m
Protection level	IP20
Communication	RS485(Modbus-RTU) or Ethernet(Modbus-TCP)
Module capacity	30A, 50A, 75A or 100A
Working mode	Automatic or manual
Overload protection	Automatic limit to rated current output

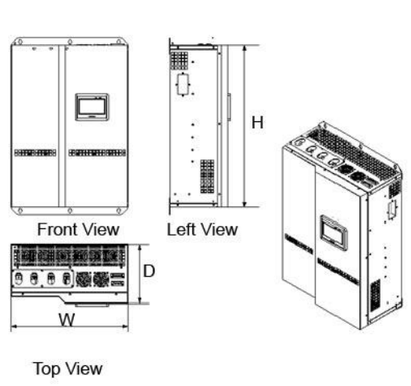
3.Structure

◆ Module



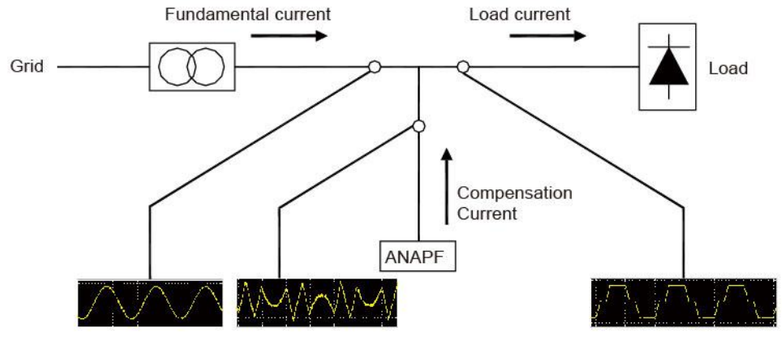
Active Power Filter	Module Size(W*D*H)(mm)	Weight(kg)
30A	480*440*130	25
50A	480*530*200	30
75A	450*622*201	35
100A	450*622*201	35
150A	500*533*280	50

◆ Wall-mounted



Active Power Filter	Module Size(W*D*H)(mm)	Weight(kg)
30A	480*130*440	25
50A	480*200*530	30
75A	450*201*622	35
100A	450*201*622	35
150A	500*280*533	50

4.Schematic



The Schematic of ANAPF

Monitoring Device

Power Monitoring and Controlling

1. AMC Series Programmable Power Meter

1.1 AC Ammeter&Voltmeter

- Model Description

AMC □ □ - □ /□

- Shape
- L:LCD blank:LED
- C:RS485(Modbus-RTU) K: 2DI/2DO
- M: analog output J:alarm
- AI: single phase ammeter AI3: three phase ammeter
- AV:single phase voltmeter AV3:three phase voltmeter

Shape	Panel size(mm)	Cut-out(mm)	Depth(mm)
48	49*49	45*45	93
72	75*75	67*67	94.3
96	96*96	92*92	77.8

- Technical Parameter

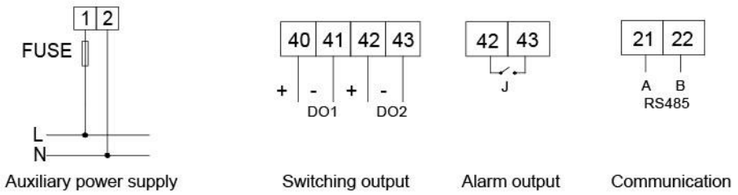
Technical Parameter			Value
Input	Rated value		Voltage: AC100V, 220V or 380V, current: AC1A or 5A
	Overload		Voltage:1.2 times rated value(continuous); 2 times rated value(1 second) Current: 1.2 times rated value(continuous); 10 times rated value (1 second)
	Frequency		45Hz~65Hz
	Power consumption		<0.5VA
Accuracy			Class 0.5
Function	Display		LED or LCD
	Communication		RS485(Modbus-RTU)
	Alarm		1 channel passive relay，contact capacity 3A/30VDC, 3A/250VAC
	Analog output		DC4~20mA(load < 500Ω)
	Switching	Input	4 channels or 2 channels passive contact Input
		Output	2 channels switching output, NO relay contact, capacity 3A/30VDC, 3A/250VAC
Auxiliary power supply	Voltage range		AC/DC 85~265V
	Power consumption		<5VA
Insulation resistance			≥100MΩ
Environment	Temperature		Operating:-10°C~+55°C Storage: -25°C ~+70°C
	Humidity		≤93%(no condensation)
	Altitude		≤2500m

• Product Functions

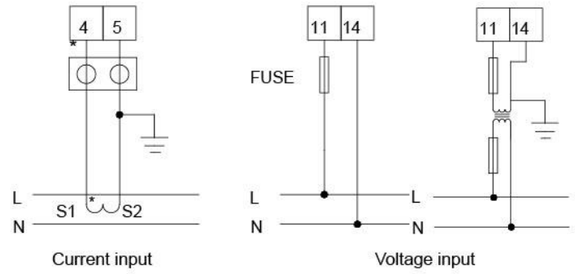
Shape	Type	Function	Option	Option Group
	AMC48-AI	•Single phase ammeter •Display: LED •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA)	/
	AMC48L-AI	•Single phase ammeter •Display: LCD •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA)	/
	AMC48-AI3	•Three phase ammeter •Display: LED •Input: AC 1A or 5A	/	/
	AMC48L-AI3	•Three phase ammeter •Display: LCD •Input: AC 1A or 5A	/	/
	AMC48-AV	•Single phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA)	/
	AMC48L-AV	•Single phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA)	/
	AMC48-AV3	•Three phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/	/
	AMC48L-AV3	•Three phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/	/
	AMC72-AI	•Single phase ammeter •Display: LED •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72L-AI	•Single phase ammeter •Display: LCD •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72-AI3	•Three phase ammeter •Display: LED •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72L-AI3	•Three phase ammeter •Display: LCD •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72-AV	•Single phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72L-AV	•Single phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72-AV3	•Three phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC72L-AV3	•Three phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC96-AI	•Single phase ammeter •Display: LED •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC96L-AI	•Single phase ammeter •Display: LCD •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC96-AI3	•Three phase ammeter •Display: LED •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM 3.3M+C
	AMC96L-AI3	•Three phase ammeter •Display: LCD •Input: AC 1A or 5A	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM 3.3M+C
	AMC96-AV	•Single phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC96L-AV	•Single phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM
	AMC96-AV3	•Three phase voltmeter •Display: LED •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM 3.3M+C
	AMC96L-AV3	•Three phase voltmeter •Display: LCD •Input: AC 100V , 220V or 380V	/C: RS485(Modbus-RTU) /M: 1 analog output (programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1.KC 2.CJM 3.3M+C

• Wiring

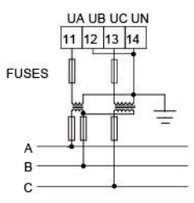


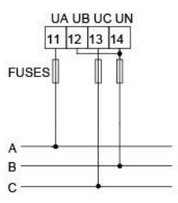


Single phase:

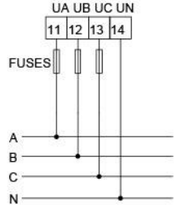


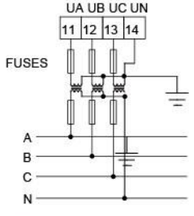
Three phase:





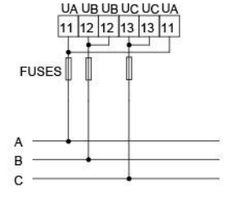
3 phase 3 wire

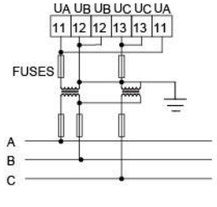




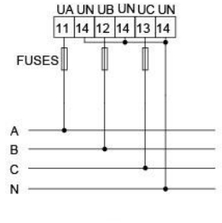
3 phase 4 wire

AMC72/96 Voltage





3 phase 3 wire

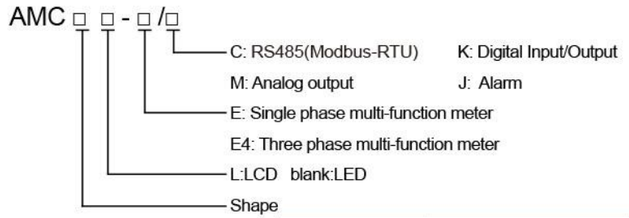


3 phase 4 wire

AMC48 Voltage

➢ 1.2 AC Multi-function Meter

• Model Description



Shape	Panel size(mm)	Cut-out(mm)	Depth(mm)
72	75*75	67*67	94.3
96	96*96	92*92	77.8

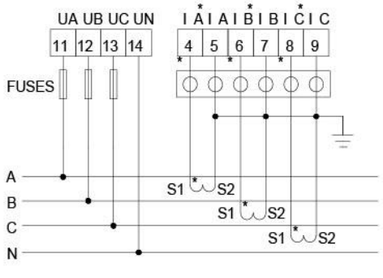
• Technical Parameter

Technical parameter		Value
Input	Connection	3 phase 4 wire
	Frequency	45~65Hz
	Voltage	Rating:AC 100V,400V
		Overload: 1.2 times rated value(continuous); 2 times rated value(1 second)
		Power consumption:< 0.5VA
	Current	Rating: AC 1A,5A
		Overload: 1.2 times rated value(continuous); 10 times rated value (1 second)
		Power consumption:< 0.5VA
Output	Energy	Pulse width:80±20ms
		Pulse constant: 10000,40000,160000 imp/kWh
	Communication	RS485(Modbus-RTU)
Function	Switching input	2 channels or 4 channels passive contact input mode
	Switching output	Output mode:2 channel relay NO contact output
		Contact capacity: 3A/30V DC, 3A/250V AC
	Analog output	0~5V,0~20mA,4~20mA programmable
Accuracy		Frequency:0.05Hz,current,voltage:class 0.2, reactive power:class 1.0,reactive energy:class 1.0,other:class 0.5,2~31st harmonic :±1%
Auxiliary power supply		AC/DC 85~265V
Power consumption		≤10VA
Insulation resistance		≥100MΩ
Environment	Temperature	Operating: -10°C~+55°C Storage: -25°C ~+75°C
	Humidity	≤93%(no condensation)
	Altitude	≤2500m

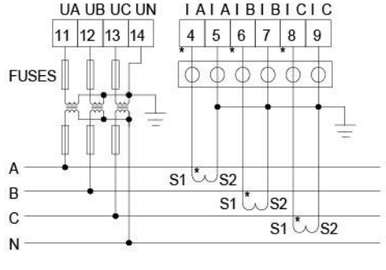
• Product Functions

Shape	Type	Function	Option	Option Group
	AMC72-E	•Single Phase Power meter •Display: LED •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ	/C: RS485(Modbus-RTU)	1.KC 2.CJ
			/K: 2DI/2DO	
			/J : Alarm	
	AMC72L-E	•Single Phase Power meter •Display: LCD •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ	/C: RS485(Modbus-RTU)	1.KC 2.CJ
			/K: 2DI/2DO	
			/J : Alarm	
	AMC72-E4/KC	•Three phase power meter •Display: LED •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ •2DI2DO •1Ep pluse output	/H: THDi, THDu	H+SOE
			/SOE: Event record	
	AMC72L-E4/KC	•Three phase power meter •Display: LCD •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ •2DI2DO •1Ep pluse output	/H: THDi, THDu	H+SOE
			/SOE: Event record	
	AMC96-E4/KC	•Three phase power meter •Display: LED •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ •4DI2DO •1Ep pluse output	/H: THDi,THDu,2-31st harmonic	H+SOE+2M
			/SOE: Event record	
			/2M: 2 analog output (When 2M is selected, the switching function is 2DI/2DO)	
	AMC96L-E4/KC	•Three phase power meter •Display: LCD •I, U, kW, kvar, kVA, kWh, kvarh, Hz, cosΦ •4DI2DO •1Ep pluse output	/H: THDi,THDu,2-31st harmonic	H+SOE+2M
			/SOE: Event record	
			/2M: 2 analog output (When 2M is selected, the switching function is 2DI/2DO)	

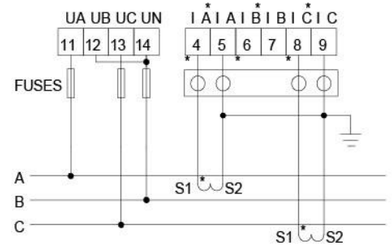
• Wiring



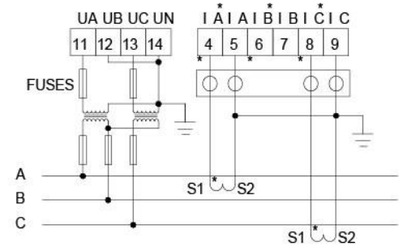
Three-phase four-wire 3CT



Three-phase four-wire 3PT ,3CT



Three-phase three-wire 2CT



Three-phase three-wire 2PT ,2CT

➢ 1.3 DC Ammeter&Voltmeter

• Model Description

AMC □ □ - □ /□

- Shape
- L:LCD blank:LED
- DI: DC ammeter
- DV:DC voltmeter
- M: analog output
- C: RS485(Modbus-RTU)

K: 2DI/2DO
J: alarm

Shape	Panel size(mm)	Cut-out(mm)	Depth(mm)
72	75*75	67*67	94.3

• Technical Parameter

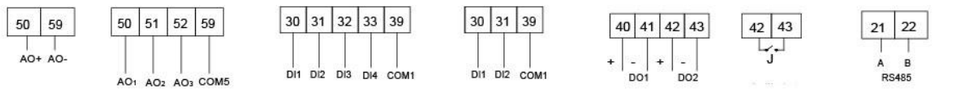
Technical Parameter		Value	
Input	Rated value	Voltage: DC 1000V,300V,10V,75mV; Current: DC0-20mA,4-20mA,5A	
	Overload	Voltage:1.2 times rated value(continuous); 2 times rated value (1 second) Current: 1.2 times rated value(continuous); 10 times rated value (1 second)	
	Frequency	45Hz~65Hz	
	Power consumption	Power consumption of each voltage, current input circuit is less than 0.5VA	
Accuracy		Class 0.5	
Function	Display	LED or LCD	
	Communication	RS485(Modbus-RTU)	
	Alarm	1 channel passive relay, contact capacity 3A/30VDC, 3A/250VAC	
	Analog output	DC4~20mA(load < 500Ω)	
	Switching	Input	2 channels passive contact
		Output	2 channels switching output, NO relay contact, capacity: 3A/30VDC, 3A/250VAC

Technical Parameter		Value
Auxiliary power supply	Voltage range	AC/DC 85~265V
	Power consumption	<5VA
Insulation resistance		≥100MΩ
Environment	Temperature	Operating:-10°C~+55°C Storage: -25°C ~+70°C
	Humidity	≤93%(no condensation)
	Altitude	≤2500m

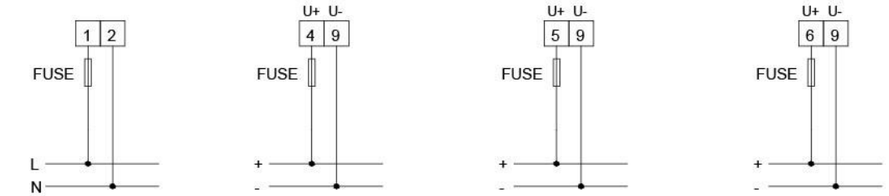
- Product Functions

Shape	Type	Function	Option	Option Group
	AMC72-DI	LED display DC programmable ammeter	/C: RS485(Modbus-RTU) /M: 1 analog output(programmable 4-20mA) /K: 2DI/2DO /J : Alarm	1. KC 2. CJM
	AMC72L-DI	LCD display DC programmable ammeter		
	AMC72-DV	LED display DC programmable voltmeter		
	AMC72L-DV	LCD display DC programmable voltmeter		

- Wiring



Analog output | Switching input | Switching output | Alarm output | Communication



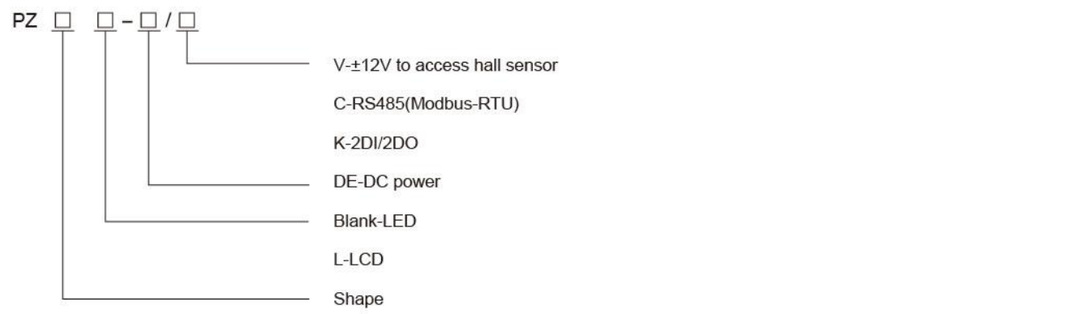
Auxiliary power supply | DC 1000V input | DC 300V input | DC 10V input



DC 75mV input | DC 5A or 20mA input

2.PZ Series DC Power Analyzer

- Model Description



Shape	Panel size(mm)	Cut-out(mm)	Depth(mm)
72	75*75	67*67	

- Technical Parameter

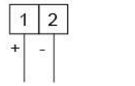
Technical parameter			Value
Input	DC voltage	Input range	0～1000V
		Input resistance	≥6KΩ/10V
	DC current	Input range	0～2500A(external shunt or hall element,range programmable)
		Shunt	Output 75mV
		Hall sensor	Output 0-20mA,0-5V
	Overload	1.2 times (continuous),2 times lasting 1 second	
Accuracy class		Class 0.5	
Function	Display	LED or LCD	
	Communication	RS485(Modbus-RTU)	
	Switchig	Input(DI)	Passive contact input,meter built-in power supply,optical isolation
		Output(DO)	Normally open relay passive contact,2A/30VDC or 2A/250VAC
Auxiliary power supply	Voltage range	AC85～265V,DC110～350V,DC36～48V	
	Power consumption	≤2VA	
Insulation resistance		≥100MΩ	
Environment	Temperature	Operating:-10℃～+55℃;Storage:-20℃～+70℃	
	Humidity	≤95% (No condensation)	
	Altitude	≤2500m	

• Product Functions

Shape	Type	Function	Option	Option Group
	PZ72-DE	LED display; DC power analyzer, U, I, +/-P, +/-kWh	/C: RS485(Modbus-RTU)	At will
			/K: 2DI/2DO	
			/V: ±12V to access hall sensor	
	PZ72L-DE	LCD display; DC power analyzer, U, I, +/-P, +/-kWh	/C: RS485(Modbus-RTU)	At will
			/K: 2DI/2DO	
			/V: ±12V to access hall sensor	
			/F: multi-tariff energy	

• Wiring

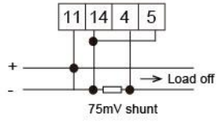
◆ Auxiliary power supply



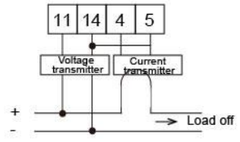
Auxiliary power supply

◆ Signal input

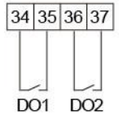
-Direct input of signal



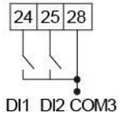
-DC transmitter with isolation



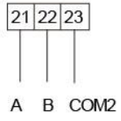
◆ Additional function



Switching output



Switching input



RS485 communication

3. ARTU Series Remote Terminal Unit

• Model Description

ARTU — □ □

Number of measurement and control：8/16/32

Function：K-remote communication unit

KJ-remote communication & control unit



• Technical Parameter

◆ ARTU-KJ8

Technical parameter	Switch input	Relay output
Input/Output circuit	8	8
Input/Output mode	Passive contact	8 channel relay output(pulse or hold mode)
Communication	RS485(Modbus-RTU)	RS485(Modbus-RTU)
Bus capacity	≤32	≤32
Resolution (SOE)	The successive of time interval between two contacts > 1ms	/
Scan time	1ms	/
Filter time	1ms	/

◆ ARTU-K8/16/32

Technical parameter	Specifications
Input circuit	8/16/32
Input	Active contact(DC12V) or passive contact
Communication	RS485(Modbus-RTU)
Bus capacity	≤32
Resolution (SOE)	Distinguishing capability for bit changing in succession of multiple contacts. When the bit changing interval of any two contacts is more than 1ms, the distinguishing capability(less than 2ms) of the unit is reflected in SOE.
Scan time	1ms
Filter time	1ms
SOE capacity	1600sets

• Product Functions

◆ ARTU-KJ8

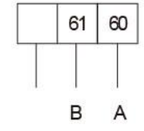
Technical parameter	Function description
Auxiliary power supply	24VDC（±10%）220VAC,allow AC/DC 85~265V
Power consumption	≤5W
Frequency	≤500HZ
Relative humidity	≤95%(No condensation)
Operating temperature	-5℃-+55℃
Storage temperature	-25℃-+70℃
Altitude	≤2500m

◆ ARTU-K8/16/32

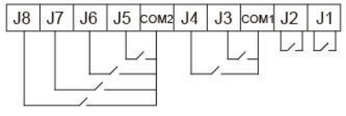
Technical parameter	Function description
Auxiliary power supply	24VDC（±10%）220VAC,allow AC85～275V/DC100～350V
Power consumption	≤5W
Frequency	≤500HZ
Relative humidity	≤95%(No condensation)
Operating temperature	-5℃-+55℃
Storage temperature	-25℃-+70℃
Altitude	≤2500m

• Wiring

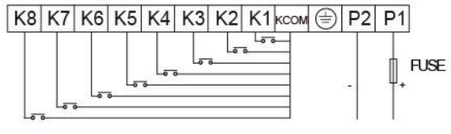
◆ ARTU-KJ8



Communication

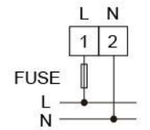


Relay output

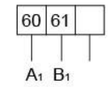


Digital input　　Auxiliary power supply

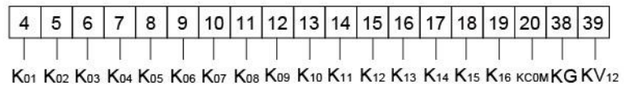
◆ ARTU-K8/16



Auxiliary power supply

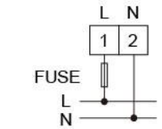


Communication

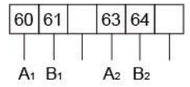


Digital input

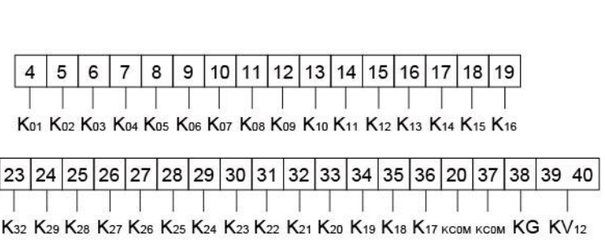
◆ ARTU-K32



Auxiliary power supply



Communication



Digital input

4. ARD Series Smart Motor Protector

4.1 ARD2 Smart Motor Protector

• Model Description

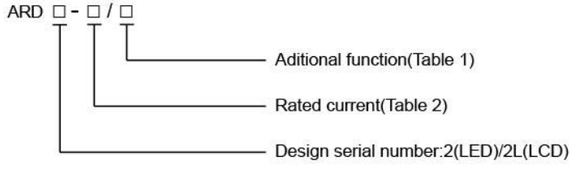




Table 1 Additional function

Additional features	Code	Additional features	Code
RS485(Modbus-RTU)	C	2 switch input; 1 relay output (programmable 3)	K
Leakage Protection	L	SOE record	SR
4～20mA analog output	M	Alarm (programmable 2)	J

Table 2 Rated current

Rated current（A）	Ratio setting	Transformer primary side turns	Setting current range（A）	Motor power（kW）
1	Need	5	0.1～999.9	0.12～440
5		1	0.1～999.9	0.12～440
1.6	No need	1	0.4～1.6	0.12～0.55
6.3		1	1.6～6.3	0.75～2.2
25		1	6.3～25	3～11
100		1	25～100	15～45
250		1	63～250	55～132
800		1	250～800	160～440

Note:When the additional function is equipped with leakage protection'L', it is necessary to purchase leakage current transformer with different apertures according to the actual current.

Table 3 Leakage current protection(L) list

Rated current(A)	CT type	CT aperture
≤100A	KB1:5A/5mA	ϕ 46mm
100A–250A	KB2: 5A/5mA	ϕ 81mm
250A–800A	KB3: 5A/5mA	ϕ 150mm

• Technical Parameter

Technical parameter	Value	
Auxiliary power supply	AC85~265V/DC100~350V,power comsumption 15VA	
Rated voltage	AC380V/AC660V,50Hz/60Hz	
Rated current	1A(0.1A-999.9A)	Small special current transformers
	5A(0.IA-999.9A)	
	1.6A(0.4A-1.6A)	
	6.3A(1.6A-6.3A)	
	25A (6.3A-25A)	
	100A (25A-100A)	
	250A (63A-250A)	Special current transformers
	800A (250A-800A)	

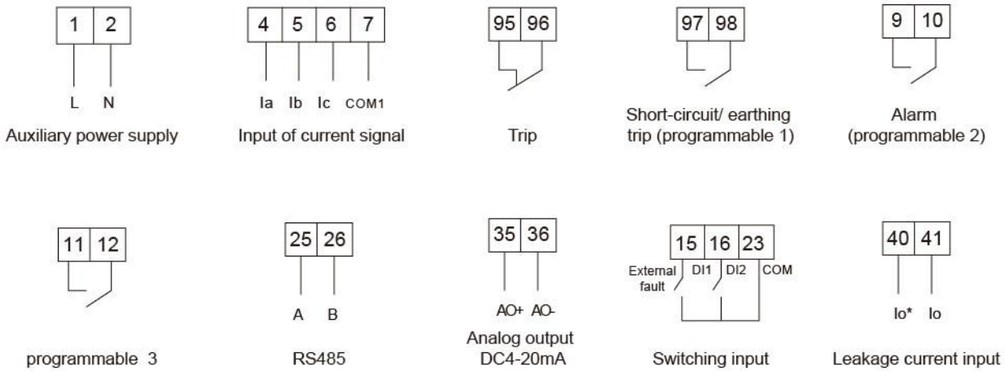
Technical parameter	Value	
Relay output contactor, rated negative capacity	4 channels,AC 250V,3A	
Switching input	2 channels,opto-coupler isolation	
Communication	RS485(Modbus-RTU)	
Environment	Operation Temperature	-10℃~55℃
	Storage temperature	-20℃~60℃
	Relative humidity	5%~95% (No condensation)
	Altitude	≤2000m
Class of pollution	Level 2	
Protection level	Main module IP 20	
Installation category	Class III	

• Product Functions

Functions \ Model			ARD2	ARD2L
Application	Low voltage 0.4kV-1.14kV motor protection			
Protection	Timeout starting		■	■
	Overload		■	■
	Underload		■	■
	Short circuit		■	■
	Blocking		■	■
	Lock		■	■
	Unbalance		■	■
	External fault		□	□
	Phase failure		■	■
	Alarm		□	□
	Residual current (choose one)	Earthing	■	■
		Leakage	□	□
Communication	RS485(Modbus-RTU)		□	□
Switch input	2		□	□
Relay output	4		2-way standard 2-way optional	
4-20mA analog output			□	□
Record	8 records		□	□
Parameter measurement	Three-phase current		■	■
	Leakage current		□	□
	Frequency		■	■
Display	LED		■	
	LCD			■

Note: ■standard □optional

• Wiring



➢ 4.2 ARD2F Smart Motor Protector

• Model Description

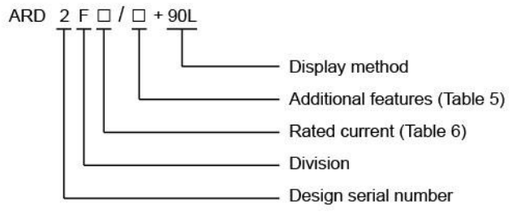




Table 5 Additional features

Additional features		Code	Additional features	Code
Start control (including 'K')		Q	Leakage protection	L
Switch input		K	4~20mA analog output	M
Temperature protection		T	Loss of pressure (anti-shake)	SU (Including 'U'and 'SR')
Alarm (programmable output)		J	SOE record	SR
Communication Interface	Modbus-RTU	C	Voltage function (phase sequence, power, power factor)	U
	2 Modbus-RTU	2C	tE time protection	tE

Note: 1.We recommend one 90L for one ARD2F.

2.'T' and '2C' cannot be selected at the same time.

3.'Q' is necessary when 'SU' is selected,'SU' includes 'SR' and 'U'.

Table 6 Rated current

Rated current (A)	Ratio setting	Transformer primary side turns	Setting current range (A)	Motor Power (kW)
1	Need	5	0.1～999.9	0.12～440
5		1	0.1～999.9	0.12～440
1.6	No need	1	0.4～1.6	0.12～0.55
6.3		1	1.6～6.3	0.75～2.2
25		1	6.3～25	3～11
100		1	25～100	15～45
250		1	63～250	55～132
800		1	250～800	160～440

• Technical parameter

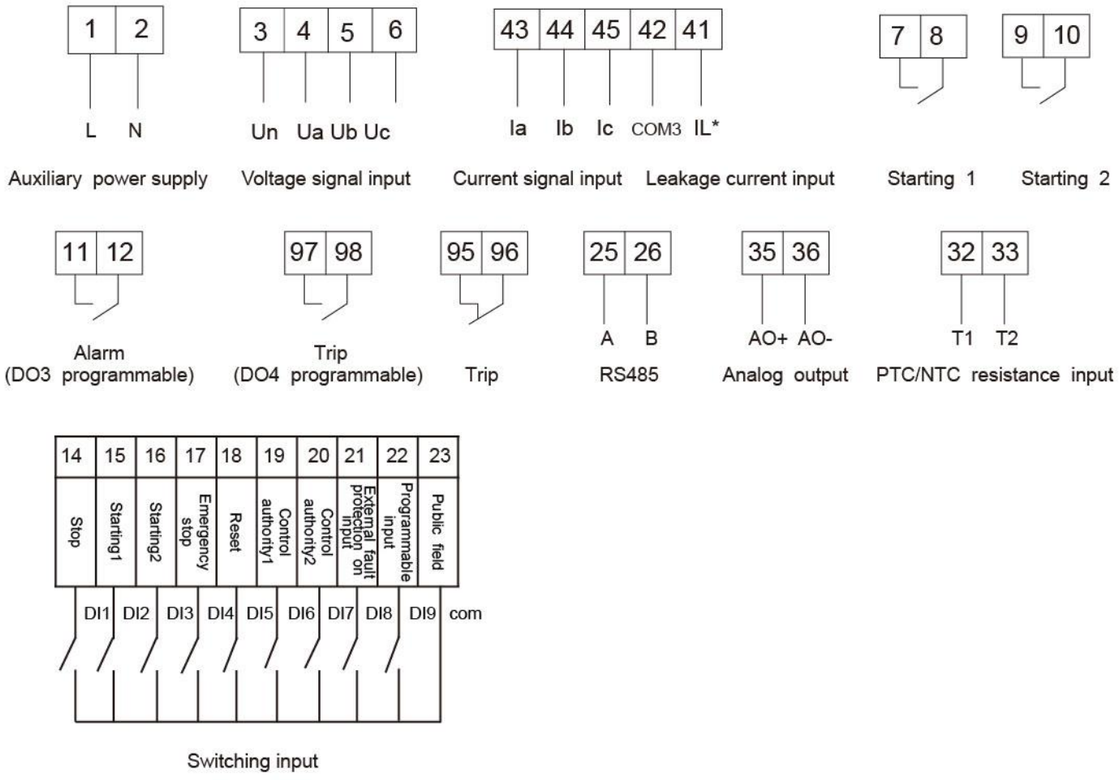
Technical parameter	Value	
Auxiliary power supply	AC85~265V/DC100~350V,power comsumption 15VA	
Rated voltage	AC380V/AC660V,50Hz/60Hz	
Rated current	1A(0.1A-999.9A)	Small special current transformers
	5A(0.IA-999.9A)	
	1.6A(0.4A-1.6A)	
	6.3A(1.6A-6.3A)	
	25A (6.3A-25A)	
	100A (25A-100A)	
	250A (63A-250A)	Special current transformers
	800A (250A-800A)	
Relay output contactor, rated negative capacity	5 channels,AC 250V 6A	
Switching input	9 channels,opto-coupler isolation	
Communication	RS485(Modbus-RTU)	
Environment	Operation temperature	-10℃~55℃
	Storage temperature	-20℃~65℃
	Relative humidity	5%~95% (No condensation)
	Altitude	≤2000m
Classs of pollution	Level 2	
Protection level	Main module IP20,display unit IP45	
Installation category	Class III	

• Product Functions

Functions	Model		ARD2F
Protection	Timeout starting		■
	Overload		■
	Underload		■
	Short circuit		■
	Blocking		■
	Lock		■
	Unbalance		■
	External fault		□
	Overvoltage		□
	Undervoltage		□
	Phase failure		■
	Phase sequence		□
	Overpower		□
	Underpower		□
	tE time		□
	Temperature		□
	Loss of voltage (anti-shake)		□
	Residual current (choose one)	Earthing	■
		Leakage	□
Communication	Modbus-RTU		□
	Double Modbus-RTU		□
Switch input	9		□
Relay output	5		2 standard 3 optional
Start control			□
4-20mA analog output			□
SOE record	20 records		□
Operational information record			■
Parameter measurement	Three-phase current		■
	Leakage current		□
	Three-phase voltage		□
	Power, power factor		□
	Frequency		■
	Energy		□
	Temperature protection(PTC/NTC)		□
Display	LCD		□

Note: ■standard □optional

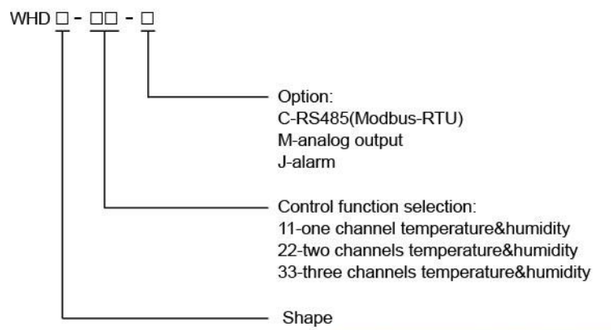
• Wiring



Switching input

5.WHD Series Smart Temperature and Humidity Controller

• Model Description



Shape	Panel size(mm)	Cut-out(mm)
48	48*48	45*45
72	75*75	67*67
46	120*60	116*56
20R	DIN 35mm	

Technical Parameter		Value
Set range of controlling parameters	Heating for Temperature rising	-40℃～40℃
	Blowing for temperature decreasing	0℃～99.9℃
	Humidity control	20%RH～90%RH
Contact capacity		5A/AC250V
Communication		RS485(Modbus-RTU)
Auxiliary power supply	Working range	AC 85~265V,DC 100~350V
	Consumption	Basic power consumption(≤0.8w)+ relay power consumption(each channel≤0.7w)
Insulation resistance		≥100MΩ
Environment	Temperature	-20℃~+60℃
	Humidity	≤95%RH (No condensation)
	Altitude	≤2500 m
Measuring range	Temperature	-40.0℃～99.9℃
	Humidity	0%RH～99%RH
Precision	Temperature	±1℃
	Humidity	±5%RH

• Product Functions

Shape	Type	Function	Option	Option Group
	WHD48–11	Measure one channel temperature & humidity(with sensors)	/C: RS485(Modbus-RTU)	/
	WHD72-11	Measure one channel temperature & humidity(with sensors)	/C: RS485(Modbus-RTU) /J : Alarm /M: Two analog output (pro–grammable 4–20mA)	1.JC 2.JM
	WHD72-22	Measure two channels temperature & humidity(with sensors)		
	WHD46–11	Measure one channel temperature & humidity(with sensors)	/C: RS485(Modbus-RTU) /J : Alarm /M: Two analog output (pro–grammable 4–20mA)	/
	WHD46–22	Measure two channels temperature & humidity(with sensors)		
	WHD46–33	Measure three channels temperature & humidity(with sensors)		
	WHD20R-11	Measure one channel temperature & humidity(with sensors)	/C: RS485(Modbus-RTU) /J : Alarm	JC
	WHD20R-22	Measure two channels temperature & humidity(with sensors)		
	WH–M	Measure one channel temperature & humidity,1RS485(Modbus-RTU)	/	/

• Accessory

◆ Temperature and humidity sensor

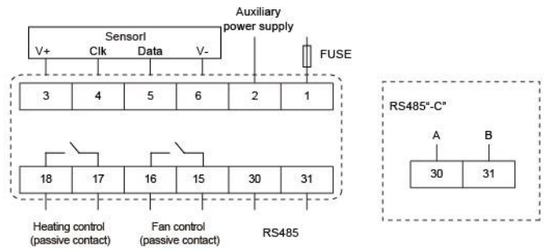
Type	Function
WH-3	one channel humidity +one channel temperature

◆ Heater

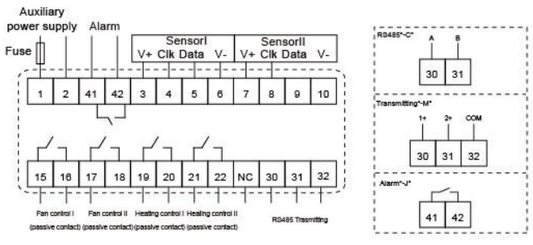
Name	Type
Aluminum alloy heater (Economic type)	ALW-75W
	ALW-150W
	ALW-250W

• Wiring

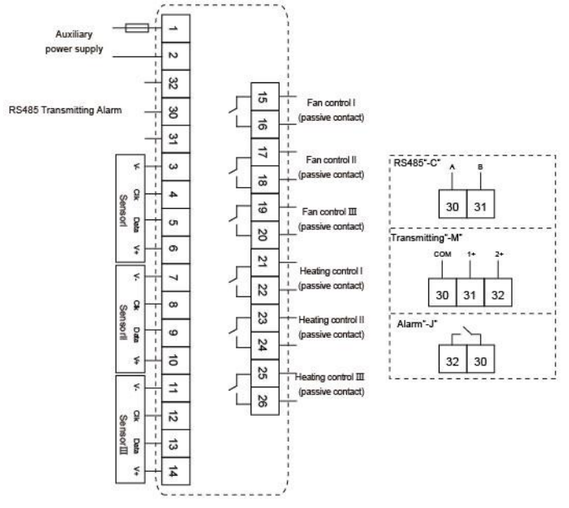
WHD48:



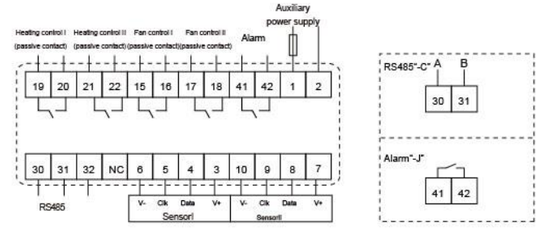
WHD72:



WHD46:



WHD20R:



6.AM Series Protection Relay

6.1 AM5 Series Protection Relay

- Model Description

A M □-□□□□□□□

1	GPS: with
2	without
1	Anti-pumping: with
2	without
1	Communication port: RS 485 (1 port)
2	RS 485 (2 port)
1	Power: 110 V AC/DC
2	220 V AC/DC
3	48 V DC
1	I_{ON}: 1 A
5	5A
1	I: 1 A
5	5A
F	Line protection
T	Transformer protection
M	Motor protection
C	Capacitor protection
B	Bus tie protection
U	PT supervision
BL	PT parallel connection
DB	0.4KV standby power automatic transfer
5	Serial number
	Protection relay



- Functions

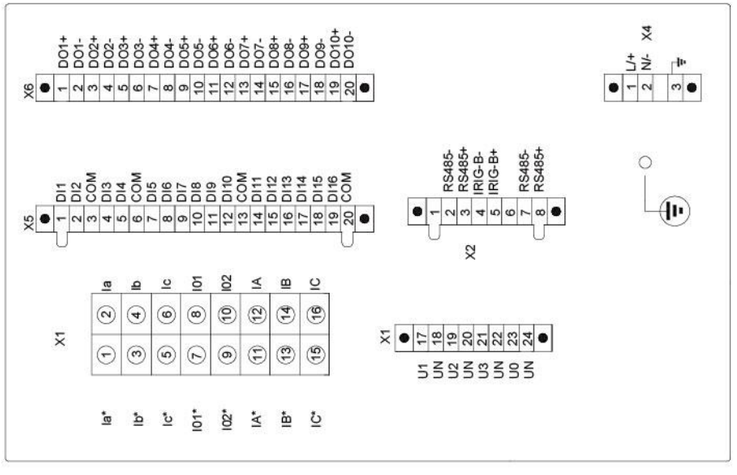
Protection Functions	AM5-							
	F	T	M	C	B	U1	U2	DB
Directional overcurrent (with voltage dependant, 3 stages)	■							
Overcurrent (with compound voltage dependant, 3 stages)		■						
Overcurrent (motor start,motor run, 2 stages)			■					
Overcurrent(2 stages)				■	■			
Overcurrent IDMT	■	■	■	■	■			
Earth fault	■	■	■	■				

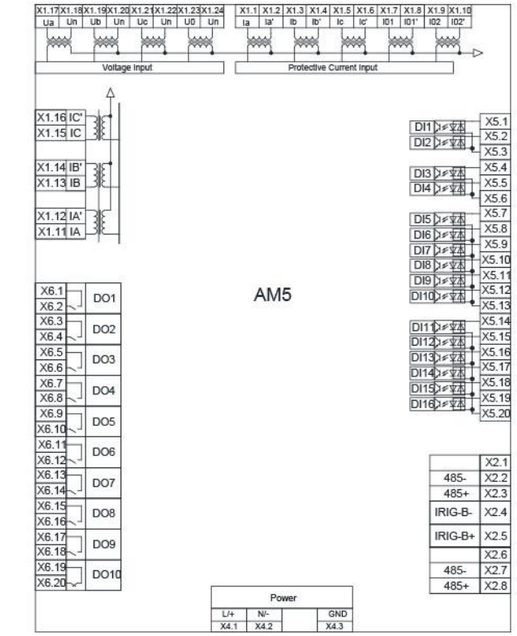
Protection Functions	AM5-							
	F	T	M	C	B	U1	U2	DB
Earth fault IDMT (I01)	■	■						
Earth fault IDMT (I02)	■	■						
Overload (alarm)	■	■	■					
Overload (trip)	■	■	■					
Trip and close circuit supervision (alarm)	■	■	■		■			
Undervoltage (trip)			■					
Undervoltage (alarm)						■	■	
Loss of voltage (trip)	■							
Loss of voltage (alarm)	■							
PT disconnection	■	■	■	■	■	■	■	
Three phase auto-reclose	■							
Under frequency	■							
Over frequency	■							
Post-accelerated overcurrent	■				■			
Overvoltage (alarm)	■					■	■	
Loss of voltage (trip)	■			■				
Blocking rotor			■					
Capacitor undervoltage				■				
Unbalance voltage				■				
Unbalance current				■				
Residual overvoltage (trip)	■			■				
Residual overvoltage (alarm)	■		■			■		
Non-electricity		■	■	■				
Starting time-out			■					
Directional power	■							
Thermal overload（trip/alarm）			■					
Negative sequence overcurrent (2 stages/IDMT)			■					
Overvoltage average			■					
Overcurrent average			■					
Incorrect phase sequence			■					
Bus tie and standby power automatic switch					■			
0.4kV standby power automatic switch								■

Protection Functions	AM5-							
	F	T	M	C	B	U1	U2	DB
FC block	■	■	■	■				
Rear Ports	F	T	M	C	B	U1	U2	DB
RS485 (2 ports)					■			
Protocols	F	T	M	C	B	U1	U2	DB
Modbus serial					■			
IEC 60870-5-103					■			
IEC 60870-5-101					■			
Logs and Records	F	T	M	C	B	U1	U2	DB
Tripping context records					■			
Sequence of event records					■			
Measurement	F	T	M	C	B	U1	U2	DB
Electric parameter	U, I, P, Q, PF, F, Ep, Eq, Es							
Input current	8	8	8	8	8	0	0	8
Input voltage	4	4	4	4	4	4	8	4
Monitoring Functions	F	T	M	C	B	U1	U2	DB
Anti-pumping circuit	Optional							
Remote control	■							
Others	F	T	M	C	B	U1	U2	DB
GPS	■							

Note: ■standard □optional

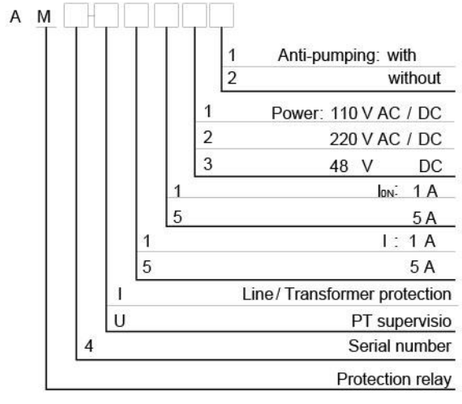
• Wiring





➢ 6.2 AM4 Series Protection Relay

• Model Description



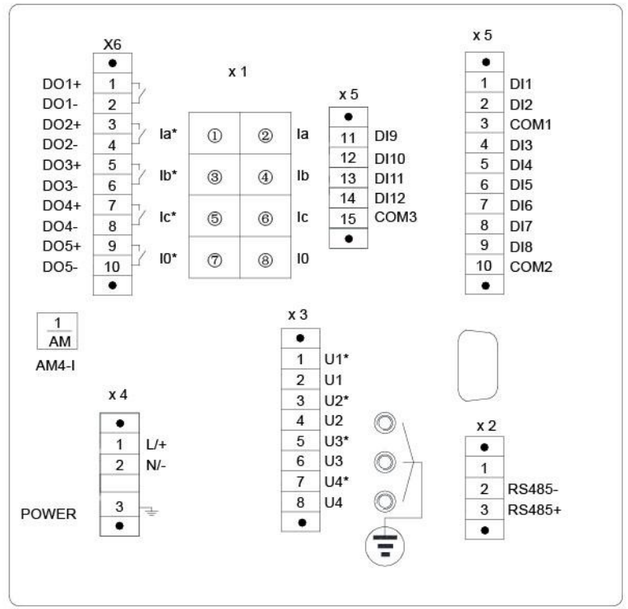


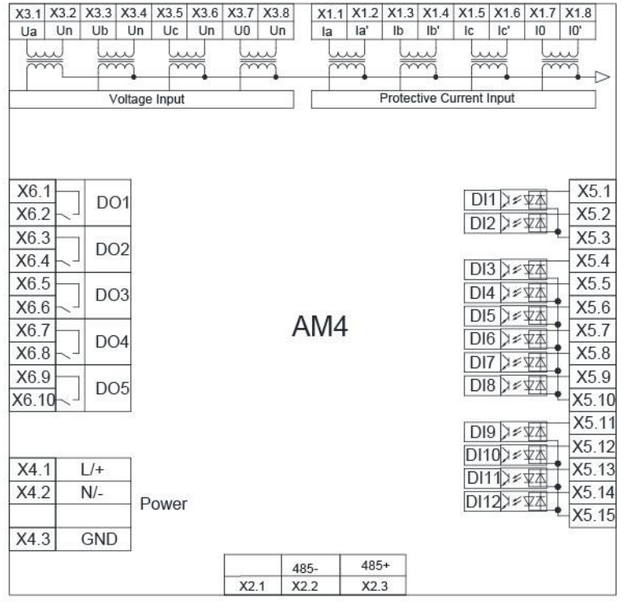
• Functions

Protection Functions	AM4-		
	I	U1	U2
Overcurrent (3 stages,IDMT)	■		
Earth fault (2 stages,IDMT)	■		
Negative sequence overcurrent (2 stages,IDMT)	■		
Auto-reclose	■		
Overload (trip/alarm)	■		
Under frequency	■		
Post-accelerated overcurrent	■		
Overvoltage (trip)	■		
Undervoltage (trip)	■		
FC block	■		
Trip and close circuit supervision (alarm)	■		
Non-electricity (trip/alarm)	■		
Undervoltage (alarm)	■	■	■
Overvoltage (alarm)	■	■	■
Residual overvoltage (alarm)	■	■	■
PT supervision (alarm)	■	■	■
Self-produced over zero-voltage (alarm)		■	■
Rear Ports	I	U1	U2
RS485		■	
Protocols	I	U1	U2
Modbus serial		■	
IEC 60870-5-103		■	
Measurement	I	U1	U2
Electric parameter		U, I, P, Q, PF, F, Ep, Eq, Es	
Input current	4	0	0
Input voltage	4	4	8
Logs and Records	I	U1	U2
Fault recorder		■	
Sequence of event record		■	
Monitoring Functions	I	U1	U2
Anti-pumping circuit	Optional		
Remote control		■	

Note: ■standard □optional

• Wiring





6.3 AM5SE Series Protection Relay

• Model Description

A M □ □ □ □ □ □ □ □

- 1 Ethernet :without
- 2 1 port
- 3 2 ports
- 1 Anti-pumping : with
- 2 without
- 1 4-20mA : with
- 2 without
- 1 Power: 110 V AC DC
- 2 220 V AC DC
- 1 I_{ON}: 1 A
- 5 5A
- 1 I : 1 A
- 5 5 A
- F Line protection
- T Transformer feeder protection
- M Motor protection
- C Capacitor protection
- B Bus tie protection
- UB Voltage transformer supervision and parallel connection
- D2 Transformer differential protection
- TB Transformer protection
- MD Motor differential protection
- 5SE Serial number
- Protection relay



• Functions

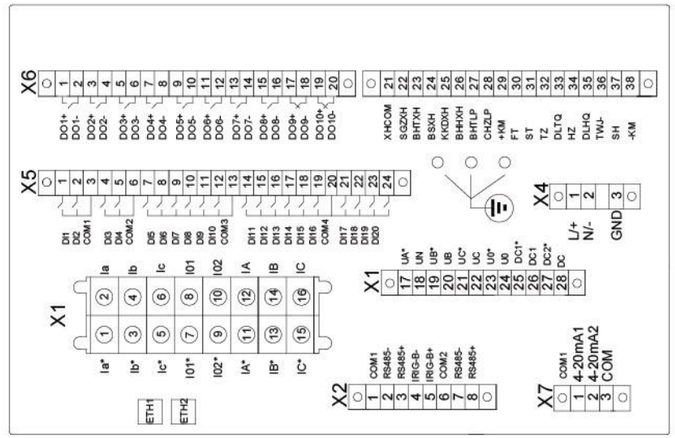
Protection Functions	AM5SE-								
	F	D2	TB	T	MD	M	B	C	UB
3 stages directional overcurrent (with voltage dependant)	■		■						
Differential protection with ratio restraining		■			■				
Instantaneous differential		■			■				
3 stages overcurrent (with composite voltage blocking)				■					
Motor start overcurrent (instantaneous)					■	■			
Motor run overcurrent (2-stages)					■	■			
2 stages directional overcurrent							■	■	
Overcurrent IDMT	■		■	■	■	■	■	■	
Bus charge							■		

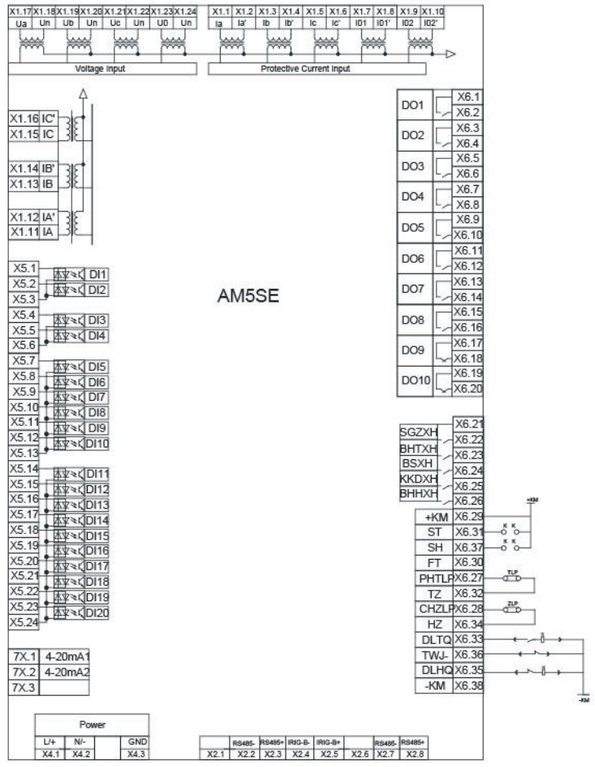
Protection Functions	AM5SE-								
	F	D2	TB	T	MD	M	B	C	UB
2 stages earth fault	■		■	■	■	■		■	
Earth fault IDMT	■		■	■					
Overload (alarm)	■		■	■	■	■			
Overload (trip)	■		■	■	■	■			
Trip and close circuit supervision (alarm)	■		■	■	■	■	■	■	
Undervoltage (trip)					■	■			
Undervoltage (alarm)									■
Loss of voltage (trip)	■								
Loss of voltage (alarm)	■								
Overvoltage (trip)					■	■		■	
Overvoltage (alarm)									■
Capacitor undervoltage (trip)								■	
Residual overvoltage (trip)	■		■		■			■	
Residual overvoltage (alarm)			■		■	■			■
Unbalance voltage					■			■	
Unbalance current					■			■	
PT supervision	■		■	■	■	■	■	■	■
PT supervision and parallel connection									■
CT supervision		■			■				
Three phase auto-reclose	■								
Under frequency	■								
Over frequency	■								
Post-accelerated overcurrent	■						■		
Directional power	■								
Non-electricity			■	■	■	■		■	
Blocking rotor					■	■			
Starting time-out					■	■			
Thermal overload					■	■			
Overvoltage average					■	■			
Incorrect phase sequence					■	■			

Protection Functions	AM5SE-								
	F	D2	TB	T	MD	M	B	C	UB
Voltage phase loss					■	■			
Negative sequence overcurrent (2 stages/IDMT)					■	■			
Bus tie protection and standby power automatic switch							■		
FC block	■		■	■	■	■			
Rear Ports	F	D2	TB	T	MD	M	B	C	UB
RS485 (2 ports)	■								
Ethernet (2 ports)	■								
USB(1 ports)	■								
Protocols	F	D2	TB	T	MD	M	B	C	UB
Modbus serial	■								
Modbus over Ethernet	■								
IEC 60870-5-103	■								
TCP IEC 60870-5-103	■								
IEC 60870-5-101	■								
Measurement	F	D2	TB	T	MD	M	B	C	UB
4-20mA analog output	■								
Electric parameter	U,I,P,Q,PF,f,Ep,Eq,Es								U,Fr
Input current	8	6	8	8	9	8	8	8	0
Input voltage	4	0	4	4	4	4	6	4	8
Logs and Records	F	D2	TB	T	MD	M	B	C	UB
Fault recorder	■								
Numbers of circuit breaker trip and close	■								
Sequence of event record	■								
Monitoring Functions	F	D2	TB	T	MD	M	B	C	UB
Trip and close circuit supervision	■								
Remote control	■								
Others	F	D2	TB	T	MD	M	B	C	UB
GPS	■								

Note: ■standard □optional

• Wiring





7.ARTM Series Temperature Monitor

Wireless Temperature Sensor		
Shape	Type	Name
	ATE100M	Magnetic type wireless temperature sensor
	ATE100	Bolted type wireless temperature sensor
	ATE200	Strap-secured type wireless temperature sensor
	ATE400	Tied type passive wireless temperature sensor
	ATE100P	Outdoor bolted type wireless temperature sensor
	ATE200P	Outdoor strap-secured type wireless temperature sensor

Wireless Temperature Measuring Equipment	
Type	Name
ATC450-C	ATC450-C Wireless temperature coordinator
ATC600	ATC600 Wireless temperature coordinator
ARTM-Pn	ARTM-Pn wireless temperature measuring equipment
ATP007	Wireless temperature measuring concentrated touch-screen(7〃)
ATP010	Wireless temperature measuring concentrated touch-screen(10〃)

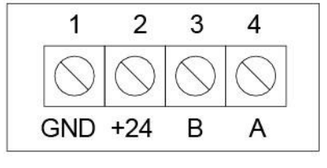
• Technical Parameter

Parameter Type	Sensor Type					
	ATE100M	ATE100	ATE200	ATE100P	ATE200P	ATE400
Power supply	Battery					CT-powered (≥5A)
wireless frequency	470MHz					470MHz

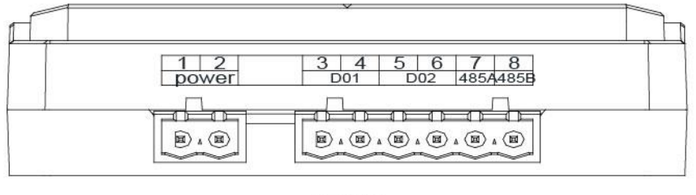
Parameter Type	Sensor Type					
	ATE100M	ATE100	ATE200	ATE100P	ATE200P	ATE400
Sampling frequency	25s					15s
Transmission frequency	25s-5min					15s
Range of temperature	-50℃～125℃			-50℃～150℃		-50℃～125℃
Precision	±1℃			±0.5℃		±1℃
Communication distance	150m in open area					
Service life	>5 years(battery life)					>10年
Application	Joints between bus bar and cable			Indoor and outdoor switchgears		Contacts of breaker, joints between bus bar and cable

Parameter Type	Wireless Temperature Measuring Equipment			
	ATC450-C	ATC600	ARTM-Pn	ATP007
Auxiliary power supply	DC24V	AC/DC100~265V	AC85～265V,DC100V～300V	DC24V
Power consumption	0.5W	2W	8W	10W
Operating mode	Terminal	-C:Terminal; -Z:Relay.	Terminal	
Sensor	ATE100M, ATE100, ATE200,ATE400,ATE100P, ATE200P			
Sensor quantity	60	240	60	240
Accuracy	±1℃			
Digital input	——	——	4 digital input	——
Relay output	——	2 relay output	2 relay output for 60 temperature nodes	——
Temperature alarm	——	——	High temperature，over temperature	Built-in buzzer, it will alarm if temperature exceed setting values
Communication port	1 RS485(Modbus-RTU)			1 RS485(Modbus-RTU) 1 Ethernet(Modbus-TCP,HTTP,DHCP)
Installation	Mounted on rail (DIN35mm) or fix with screw		Installed with the front panel embedded	

• Wiring

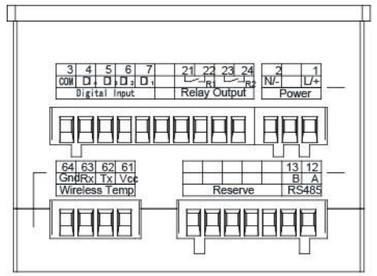


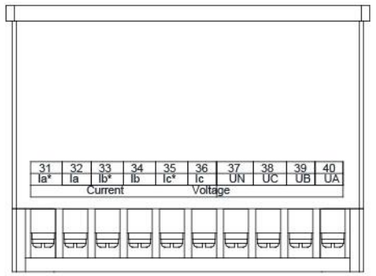
ATC450-C



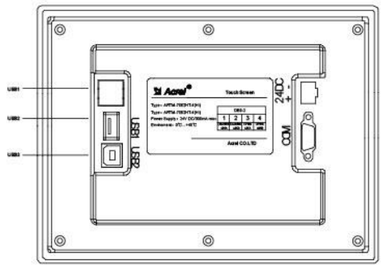
ATC600

Monitoring Device

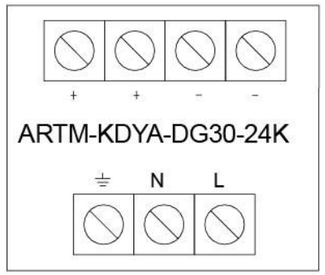




ARTM-Pn



Wireless temperature measuring concentrated touch-screen



(24V power module)

8.ASJ Series Residual Current Relay

- Model Description

ASJ □ — □ □ □

- Input type:A-A type C-CC type
- Number of circuits
- LD:residual current
- Shape

Shape	Panel size（mm）	Cut-out（mm）
20	48*48	45*45
10	DIN 35mm	
10L		

- Technical Parameter

Technical parameter		Value	
		AC type	A type
Input	Rated residual operated current I△n	0.03,0.1,0.3,0.5(A)	0.03,0.05,0.1,0.3,0.5,1,3,5,10,30(A) note1
	Limited non-actuating time	0.1,0.5(S)	0,0.06,0.1,0.2,0.3,0.5,0.8,1,4,10(S) note2
	Rated residual non-operating current I△	50%I△n	Adjustable
	Features	Sinusoidal AC current	Sinusoidal AC current and pulsating DC current
	Frequency	50Hz±5Hz	
Tripping accuracy		-20%～-10% I△n	
Output	Output mode	1 NC contact, 1 normal changeover contact	1 NC contact, 1 normal changeover contact, all adjustable
	Contact capacity	5A/250VAC,5A/30VDC	AL1:8A/250VAC,5A/30VDC;AL2:6A/250VAC,5A/30VDC
	Reset mode	Local,remote	Local,remote,automatic
Auxiliary power supply	Voltage range	AC110V,AC220V(±10%)	AC/DC85~270V
	Power consumption	≤5W	
Power frequency withstand voltage		The effective value of alternating current between the power supply, input and output: 2kV/1min	
Environment	Temperature	Operation:-20℃～+55℃,Storage:-30℃～+70℃	
	Humidity	≤95%RH(No condensation)	
	Altitude	≤2000m	

Note1: For ASJ10L-LD1A, the I△n is continuously adjustable from 10mA to 30A.
Note2: For ASJ10L-LD1A, the △t is continuously adjustable from 0s to 10s.

- Product Functions

Shape	Type	Function
	ASJ20-LD1C	AC type residual current Over residual current alarm Adjustment of Rated residual current from 0.03 to 0.5 A Adjustment of limiting no-actuating time(0.1s, 0.5s) 2 relay output(1 NC contact,1 normal changeover contact) Local/ remote “test” and “reset” function
	ASJ20-LD1A	A type residual current Residual current percentage light bar indication (30%,50%,70%,TRIP) Adjustment of Rated residual current from 0.03 to 30 A Adjustment of limiting no-actuating time0.1 to 10s 2 programmable relay output(1 NC contact,1 normal changeover contact) Local/ remote/automatic “test” and “reset” function
	ASJ10-LD1C	AC type residual current Over residual current alarm Adjustment of Rated residual current from 0.03 to 0.5 A Adjustment of limiting no-actuating time(0.1s, 0.5s) 2 relay output(1 NC contact,1 normal changeover contact) Local/ remote “test” and “reset” function

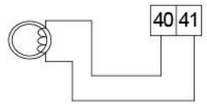
Shape	Type	Function
	ASJ10-LD1A	A type residual current Residual current percentage light bar indication (30%,50%,70%,TRIP) Adjustment of Rated residual current from 0.03 to 30 A Adjustment of limiting no-actuating time0.1 to 10s 2 programmable relay output(1 NC contact,1 normal changeover contact) Local/ remote/automatic “test” and “reset” function
	ASJ10L-LD1A	A type residual current Continuously adjustable of Rated residual current from 0.03 to 30 A Continuously Adjustment of limiting no-actuating time0.1 to 10s 2 programmable relay output(1 NC contact,1 normal changeover contact) Local/ remote/automatic “test” and “reset” function Multi-function LC display RS485 communication with modbus-RTU protocol

• Wiring

◆ Auxiliary Power Supply and Signal Input



Auxiliary power supply



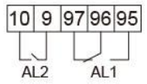
Signal input

◆ ASJ10L-LD1A communication terminals



RS485

◆ Relay Output



Relay output terminal
AL1:alarm
AL2:warning

◆ Additional Functions



Remote test Remote reset

• Selection of residual current transformer

Type	Rated current	Ratio	Accuracy	Hole size（mm）
L-35	16~100A	5A/5mA	0.5	35
L-70	100~250A	5A/5mA	0.5	70
L-105	250~400A	5A/5mA	0.5	105
L-45	16~100A	5A/5mA	1	45
L-80	100~250A	5A/5mA	1	80
L-100	250~400A	5A/5mA	1	100
L-150	400~800A	5A/5mA	1	150
L-200	800~1500A	5A/5mA	1	200
L-80X50II	16~100A	5A/5mA	0.5	82X52
L-100X50II	16~100A	5A/5mA	0.5	103X55
L-130X50II	100~200A	5A/5mA	0.5	135X55
L-150X130II	100~300A	5A/5mA	0.5	150X133
L-180II	100~200A	5A/5mA	0.5	182X35
L-200X50II	250~400A	5A/5mA	0.5	202X61
L-260X100II	450~800A	5A/5mA	0.5	265X104
L-17030	100~200A	5A/5mA	1	172X34
L-210 X160	450~800A	5A/5mA	0.5	210 X160

Energy Management

1.APM Series Multifunction Meter

1.1 Model Description

APM □ - □

Functional modules of the product

Models (800,801,810,830)



Shape	Panel size(mm)	Cut-out(mm)	Depth(mm)
96	96*96	92*92	65

1.2 Technical Parameter

Technical Parameter		Value
Signal	Connection	3 phase 3 wire, 3 phase 4 wire
	Frequency	45~65Hz
	Voltage	Rated value: AC 100V,110V,400V,690V
		Overload: 1.2 times rated value(continuous); 2 times rated value(1 second)
		Power consumption: < 0.5VA (per channel)
	Current	Rated value: AC 1A, 5A
		Overload: 1.2 times rated value(continuous); 10 times rated value(1 second)
		Power consumption: < 0.5VA (per channel)
Measurement accuracy	Voltage,current and power	Class 0.5S (APM800,APM810)
	Active power	Class 0.2S (APM801,APM830)
	Reactive power	Class 2
	Harmonic	1%(2~42nd),2%(43~63rd)
Switch inputs		Passive contact inputs, built-in power supply
Relay outputs		Contact type: open contact in main part, changeover contact in module Contact capacity：3A/AC 250V 3A/DC 30V
Pulse output of energy		Output mode: Optocoupler pulse with open collector Pulse constant:4000(5A),8000(1A) imp/kWh
Analog outputs		DC 0~20mA,4~20mA,0~5V,1~5V output, accuracy class 0.5%, load resistance ≤ 500Ω
Analog inputs		DC 0~20mA,4~20mA,0~5V,1~5V input, accuracy class 0.5%
Storage card		Standard capacity:4G,TF card up to 32G capacity

Technical Parameter		Value
Communication		RS485(Modbus-RTU)
		Profibus(Profibus-DP)
		Ethernet(Modbus-TCP,HTTP,DHCP)
Auxiliary power supply		Operating range: AC/DC 85V~265V or AC/DC 115~415V(P2)
		Power consumption: Power consumption of the main part ≤ 15VA
Safety	Insulation resistance	>100MΩ
Electromagnetic compatibility		IEC 61000 standard (Level 4)
Protection level		IP54(Front)
Environment		Operating temperature: -20 °C ~ +65 °C
		Storage temperature: -20°C~+70°C
		Relative humidity: ≤95%(no condensation)
		Altitude: ≤2500m

1.3 Product Functions

Function	Function description	APM800 (class 0.5s)	APM801 (class 0.2s)	APM810 (class 0.5s)	APM830 (class 0.2s)
Parameters	All parameters	■	■	■	■
	Four-quadrant energy	■	■	■	■
	Multi-rate energy	□	□	□	■
Pulse output of energy	Active/reactive	■	■	■	■
Demand	Real-time and maximum demand of I, P, Q,S (with time)	■	■	■	■
Extreme value statistics	Extremum of I, UL-L, UL-N, P, Q, S, PF, F, THDi, THDu in this month and last month (with time)	■	■	■	■
Power quality	Unbalance of I,UL-L,UL-N	■	■	■	■
	Voltage phase angle,current phase angle	■	■	■	■
	Total and 2nd-63rd harmonic content of voltage and current	-	-	■	■
	Voltage crest factor	-	-	■	■
	Telephone waveform factor	-	-	■	■
	Current K-factor	-	-	■	■
	Positive sequence, negative sequence, zero sequence voltage and current	-	-	-	■
	Fundamental voltage and current	-	-	-	■
Waveform	Waveform trace display	-	-	-	■
	Fault waveform record	-	-	-	■
Alarm	A total of 66 kinds of alarm types, each type can record the most recent 16 alarm records, support extended records by TF card	■	■	■	■
Event	Record the most recent 128 event records, support extended records by TF card	■	■	■	■
Communication	RS485(Modbus-RTU)	■	■	■	■
I/O	2DI+2DO	■	■	■	■

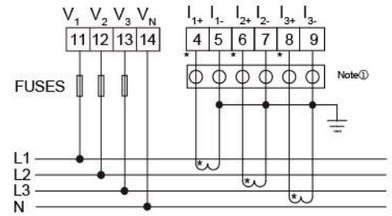
Function	Function description		APM800 (class 0.5s)	APM801 (class 0.2s)	APM810 (class 0.5s)	APM830 (class 0.2s)
Optional functions	MD82	8DI+2DO	■	■	■	■
	MLOG	TF card	■	■	■	■
	MA84	8AI+4AO	■	■	■	■
	MCM	1 RS485(Modbus-RTU),support master mode or slave mode	■	■	■	■
	MCP	1 Profibus(Profibus-DP)	■	■	■	■
	MCE	1 Ethernet(Modbus-TCP,HTTP,DHCP)	■	■	■	■

Note ① Accuracy of 2-42nd harmonic measurement in the frequency range of 45~65Hz is 1%, accuracy of 43-63rd harmonic measurement in frequency range of 50Hz is 2%.

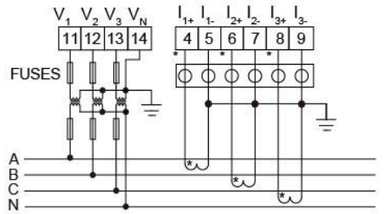
② "■":standard "-":No "□":Optional

1.4 Wiring

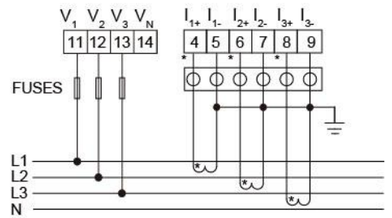
- Wiring sample of voltage and current



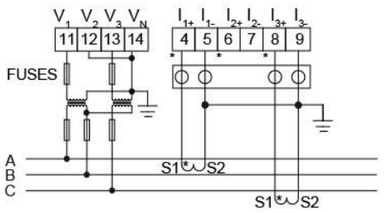
3P4W/3CT(Meter is set to 3P4W)



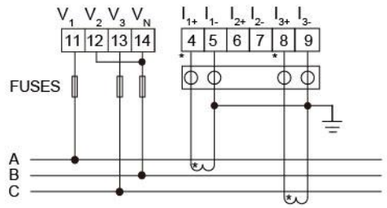
3P4W/3PT+3CT(Meter is set to 3P4W)



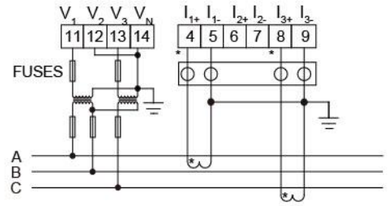
3P3W/3CT(Meter is set to 3P4W) Note②



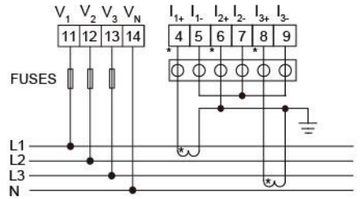
3P3W/2PT+3CT(Meter is set to 3P3W-3CT) Note③



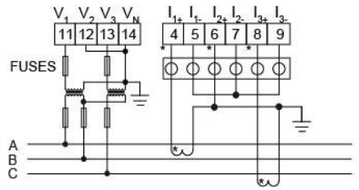
3P3W/2CT(Meter is set to 3P3W-2CT)



3P3W/2PT+2CT-1(Meter is set to 3P3W-2CT)



3P4W/2CT(Meter is set to 3P4W) Note②



3P3W/2PT+2CT-2(Meter is set to 3P3W-3CT) Note③

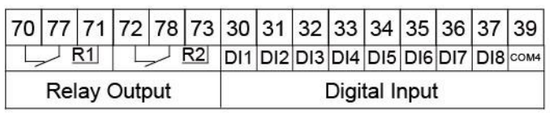
Note ①: ○○○○○○ This is a test terminal for shorting the secondary side of the CT.

Note ②: Only for balanced three-phase loads.

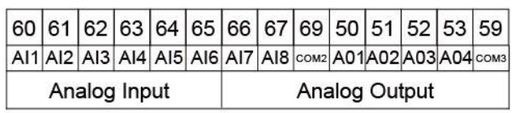
Note ③: Phase B current is only displayed and does not participate in other calculations.

• Module parts

Switch module



Analog input and output module



Ethernet module



2.ADL Series Din Rail Energy Meter



ADL10-E



ADL100-ET



ADL3000-E

2.1 Technical Parameter

Technical parameter		Type		
		ADL10-E	ADL100-ET	ADL3000-E
Voltage	Reference voltage	220V		3*57.7/100V 3*220/380V 3*100V 3*380V
	Reference frequency	50Hz		
	Consumption	<10VA（Single phase）		
Current	Maximum current	60A		6A,80A
	Starting current	0.004Ib		Direct connect:0.004Ib Connect via CT:0.001In
	Consumption	<4VA (Maximum current)		<1VA (Single phase rated current)
Measurement performance	Standards compliant	IEC 62053-21:2003		IEC 62053-22:2003
	Accuracy of Active kWh	Class 1		Class 0.5S
Pulse	Pulse width	80±20ms		
	Pulse constant	3200imp/kWh	1600imp/kWh	400imp/kWh 6400imp/kWh
Communication	Interface	RS485		
	Protocol	MODBUS-RTU		
Outline	Length *Width * Height(mm)	18*88*70	36*88*70	127*88*70
Environment	Temperature	Operating:-25℃~55℃;Storage :-40℃~70℃		
	Humidity	≤95% (No condensation)		
	Altitude	<2000m		

2.2 Product Functions

■ ADL10-E

Function	Description	Provide
Measurement of kWh	Single-phase active energy (positive and negative)	■
Measurement of electrical parameters	U,I,P,Q,S,PF,Hz	■
LCD Display	8 digits	■
Communication	RS485, MODBUS-RTU	□C

Note:(■：standard; □：optional)

■ ADL100-ET

Function	Description	Provide
Measurement of kWh	Single-phase active energy (positive and negative)	■
Measurement of electrical parameters	U,I,P,Q,S,PF,Hz	■
LCD Display	8 digits	■
Button	3 keys	■
Pulse output	Active energy pulse output	■
Communication	RS485, MODBUS-RTU	□c
	Infrared	■

Note:(■：standard; □：optional)

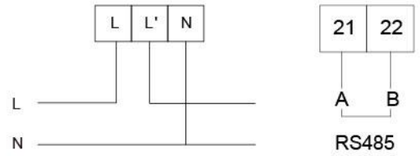
■ ADL3000-E

Function	Description	Provide
Measurement of kWh	Active kWh (positive and negative)	■
	Reactive kWh (positive and negative)	■
	A, B, C phase positive kWh	■
Measurement of electrical parameters	U,I,P,Q,S,PF,HZ	■
Measurement of harmonic	2~31st voltage and current harmonic	□
LCD Display	8 digits	■
Button	4 keys	■
LED alarm	voltage loss and over voltage	■
Switch I/O	Active switch input	□
	Switch output	□
Data	Maximum demanded kWh and time happened	□
	Frozen data on last 48 months, last 90days	□
	Date, time	□
Communication	Infrared	■
	RS485, MODBUS-RTU	□
Temperature measurement	Support 3 outlay NTC temperature	□

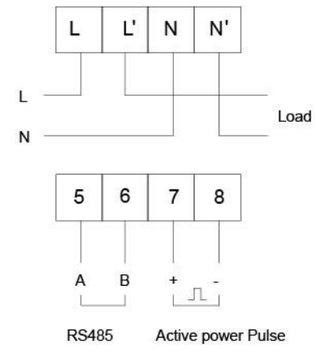
Note:(■：standard; □：optional)

2.3 Wiring

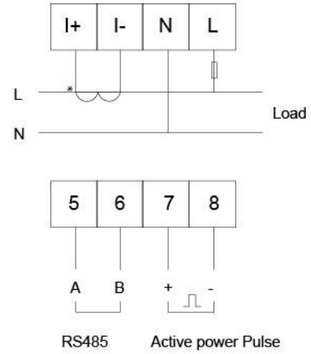
■ ADL10-E



■ ADL100-ET

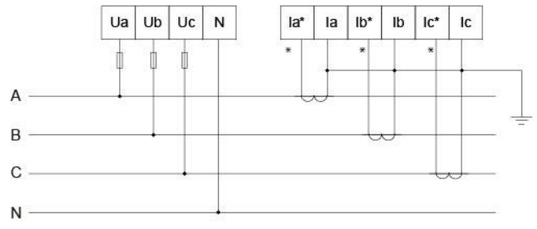


10(60)A specification wiring diagram

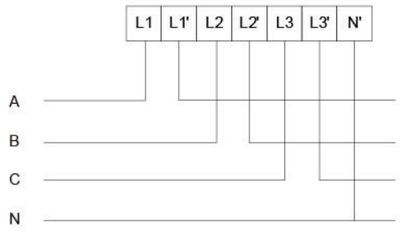


20(100)A specification wiring diagram

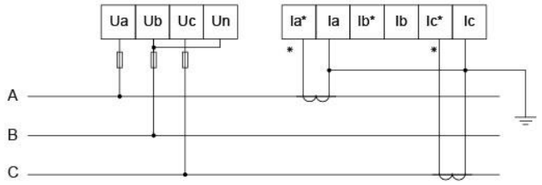
■ ADL3000-E



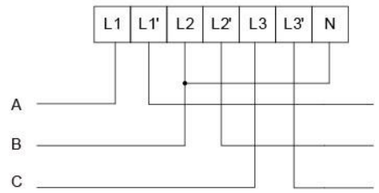
Three phase four lines connect via CT



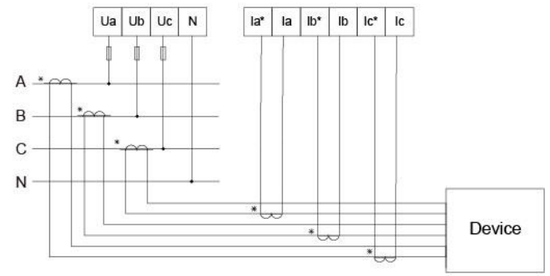
Three phase four lines direct connect



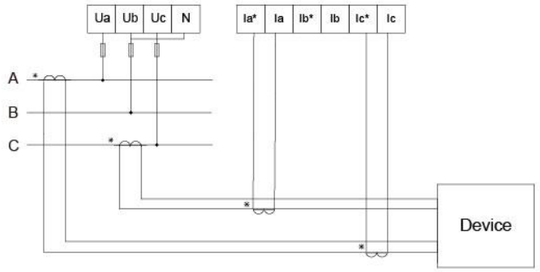
Three phase three lines connect via CT



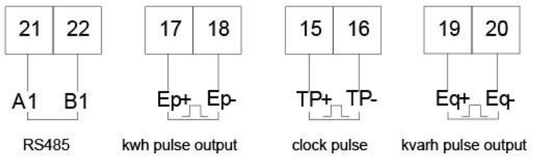
Three phase three lines direct connect



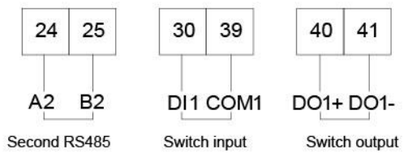
Three phase four lines, 3CT



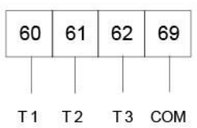
Three phase three lines, 2CT



Communication, pulse connection



Communication, pulse connection



Outlay NTC temperature measurement

3.ADL Series Prepayment Meter



ADL100-EY



ADL300-EY

3.1 Technical Parameter

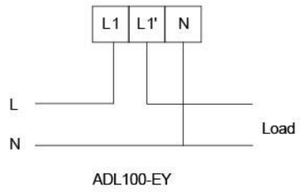
Technical parameter		ADL100-EY	ADL300-EY
Voltage	Nominal voltage	220V	3*220/380V
	Nominal frequency	50/60Hz	
	Consumption	<4VA(Each phase)	
Current	Maximum current	60A	6A,80A
	Starting current	Connect directly: 0.04A, connect via CT: 0.002A	
	Consumption	<4VA (Maximum current)	
Measurement performance	Accuracy	Class 1	Class 0.5s
Clock	Accuracy	Error ≤0.5s/d	
Active pulse	Width	80ms±20ms	
	Constant	1600imp/kWh	6400imp/kWh,400 imp/kWh
Outline	Length*Width*Height (mm)	72*88*70	144*88*70
Communication	Interface	RS485	
	Protocol	MODBUS-RTU	
Temperature range	Working	-25℃~55℃	
	Storage	-40℃~70℃	
Relative humidity		≤95%(No condensation)	
Altitude		≤2000m	

3.2 Product Functions

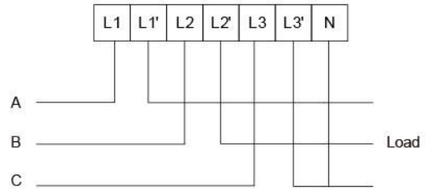
Function	Description		Provide
	ADL100-EY	ADL300-EY	
Measurement of kWh	Total active kWh (positive and negative in total)		■
Electrical parameters	U,I ,P,Q,S,PF,Hz		■
Pre-paid mode	Through RS485 communication prepaid recharge, data encryption		■
Control	Magnetic latching relay		■
LCD display	8 digits		■
Communication	RS485(Modbus-RTU)		■

Note:（■: standard; □: optional）

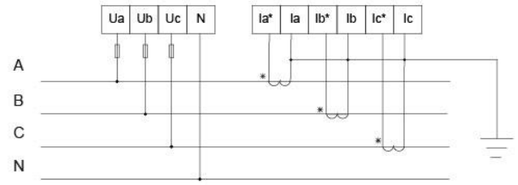
3.3 Wiring



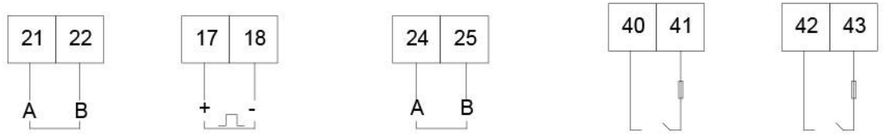
ADL100-EY



ADL300-EY Three phase four lines direct connect



ADL300-EY Three phase four lines connect via CT



4.ADF Series Multi-circuits Energy Meter

4.1 Model Description

ADF400L - □ H □ S □ D □ - □

- Optional function: none、CE、IC、K、*C(Up to 3 channels)
- Control type: none: metering type; Y: prepaid type
- Single-phase circuit: up to 36 (multiple of 3) circuits
- Three-phase circuit: up to 12 circuits
- Three mutual inductor access loop: up to 12 (multiple of 2) channels

4.2 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 6400 imp/kWh
		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℃~+60℃， storage temperature：-30℃~+70℃
	Humidity	≤95%RH，No condensation, no corrosive gas place
	Altitude	≤2000m

4.3 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

Monitoring Device

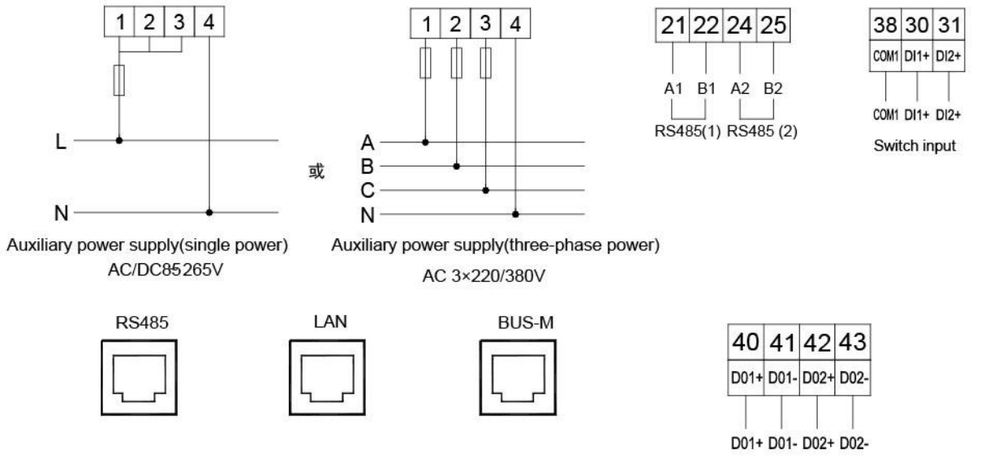
Function	Function description
Communication	Up to 3 channels of communication: RS485 interface，Also support Modbus
Prepaid agreement (remote, radio frequency card)	Cost control (including forward active power and reverse active power)
	Time control
	Negative control (malignant load identification)
	Strong control
Recharge record	20 Article

■ Metering type

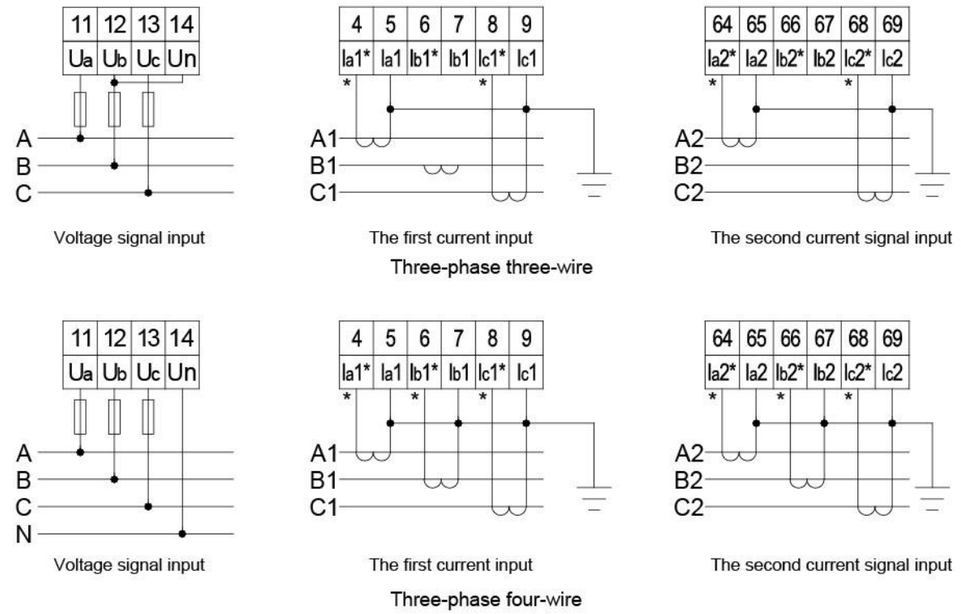
Function	Function description
Display method	LCD（Field）
Energy metering	Active energy metering（Forward and reverse），Reactive power measurement（Forward and reverse）
Electricity measurement	Voltage, current (zero sequence current), power factor, frequency, active power, reactive power, apparent power
Harmonic 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

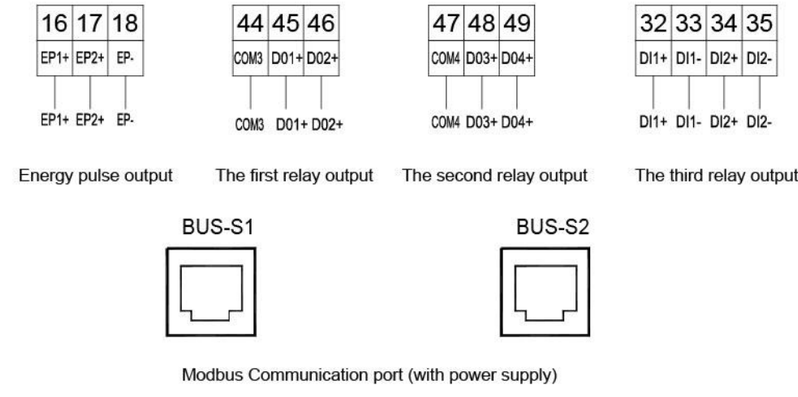
➢ 4.4 Wiring

■ Main module

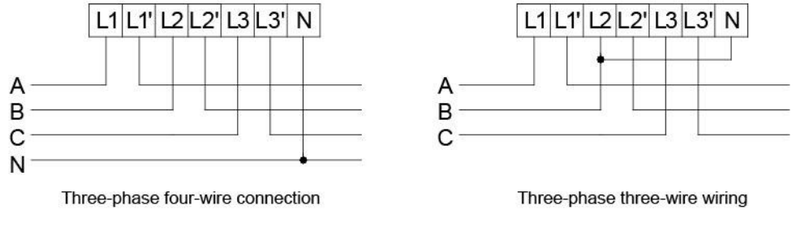


■ Transformer access module

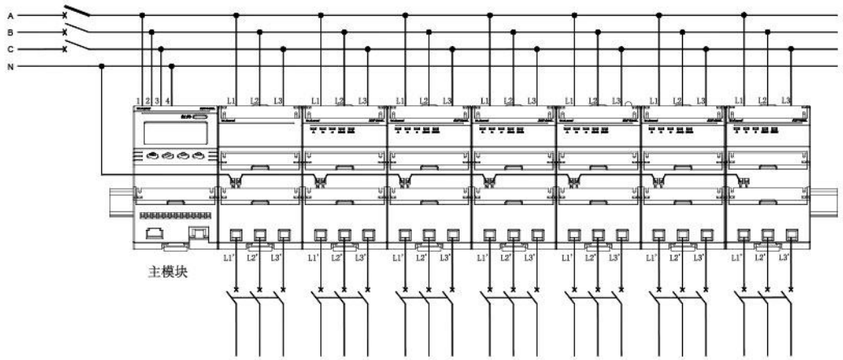




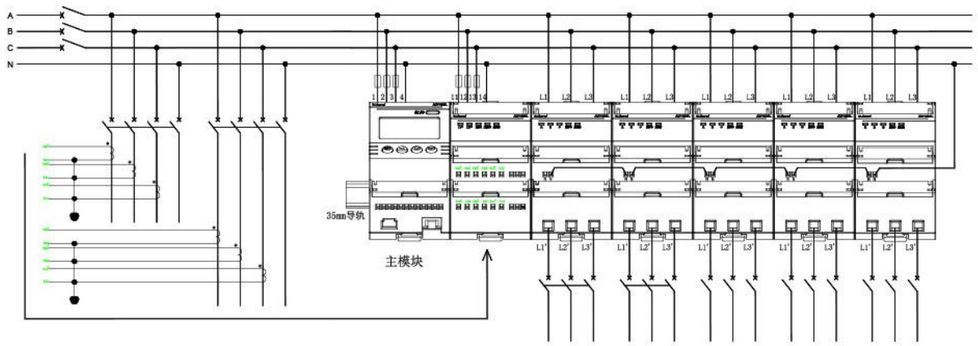
■ Direct access to the module



■ 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

5.AEW Series Wireless Energy Meter

5.1 Model Description

AEW100 □ - □ / □ - □ - □

- Empty:Normal wiring;CG:Taking voltage from magnetic steel
- Empty:No Temperature Measurement;TN:Temperature Measurement
- Empty:Rod antenna;X:Sucker antenna
- Empty:Piercing(except D15);W:No piercing
- D15/D20/D36:Mutual inductor aperture 15mm20/mm36/mm
- Wireless metrology module



AEW100

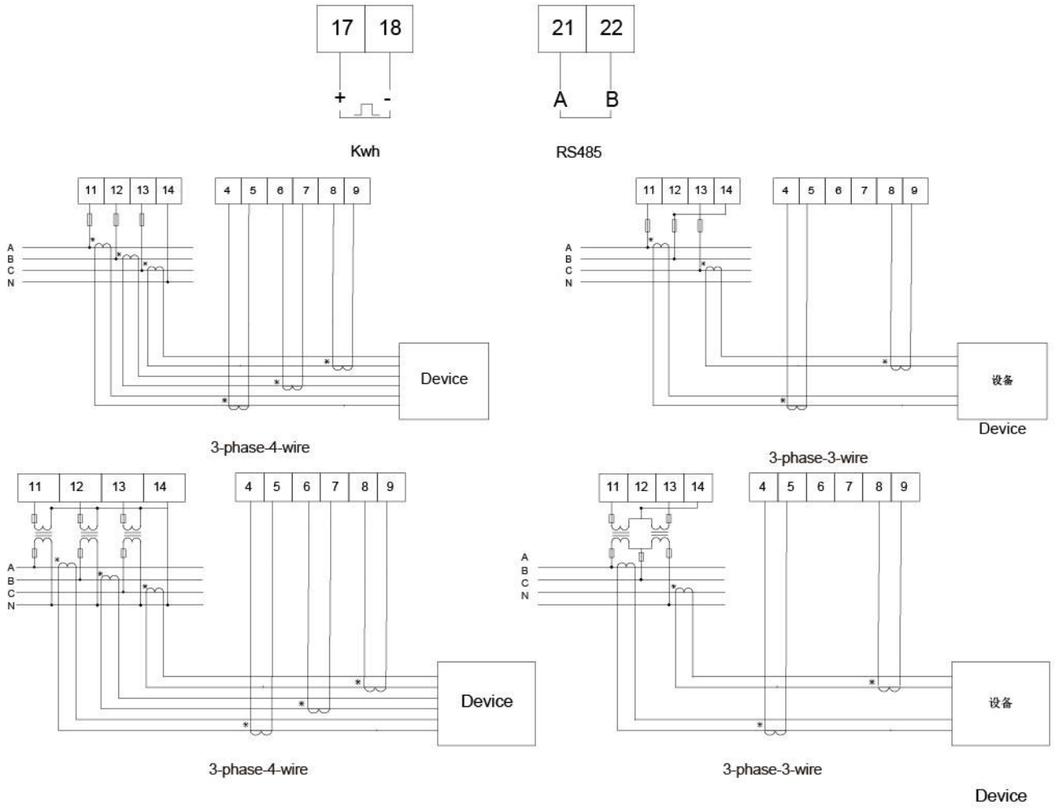
5.2 Technical Parameter

Voltage	Rated voltage	3*220/380V,3*380V,3*57.7/100V,3*100V
	Reference frequency	50Hz
	Consumption	<2VA(Each phase)
Current	Input current	3*1.5(6)A,3*20(100)A, 3*40(200)A,3*80(400)A,3*120(600)A
	Start current	4‰Ib（Class 1）
	Consumption	<2VA
Measurement performance	Standard	IEC 62053-21:2003
	Active energy accuracy	Class 1
	Temperature accuracy	±2℃
Pulse	Width of pulse	80ms±20ms
	Pulse constant	6400imp/kWh ,400imp/kWh,200imp/kWh,100imp/kWh,60imp/kWh
Communication	Wireless	Transmission on 470MHz and maximum distance in open space is 1km
	Infrared communication	The constant baud rate is 1200
	Interface	RS485(A+,B-)
	Connection mode	Shielded twisted pair conductors
	Protocol	MODBUS-RTU
Outline(mm)	L*W*H(main part)	54*88*50
Temperature range	Operating temperature	-20℃~55℃
	Storage temperature	-40℃~70℃
Humidity		≤95%(No condensation)
Altitude		<2000m

5.3 Product Functions

Function	Function description
Energy metering	Active kWh (positive and negative)
Electrical measurement	U,I, P,Q,S,PF,F
Pulse output	Active pulse output
LED display	(L1,L2,L3)powered display,pulse,communication,wireless status
Communication	Wireless transmission on 470MHz
	Infrared communication
	Communication interface: RS485(Modbus-RTU)

● 4.1.4Wiring



6.ADW Series IoT Power Meter



ADW200 ADW210 ADW220 ADW300

6.1 ADW2XX Series Wireless Energy Meter

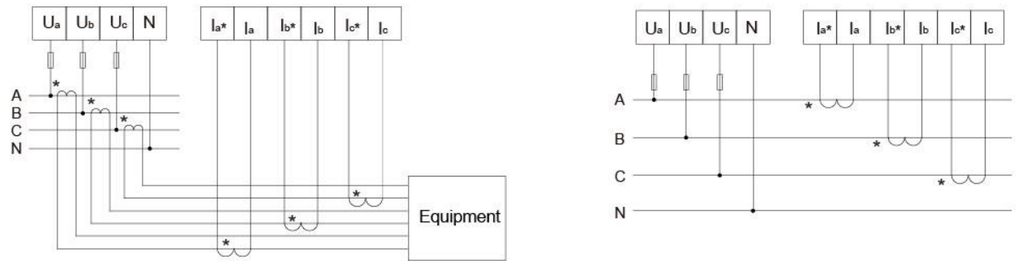
● 6.1.1 Technical Parameter

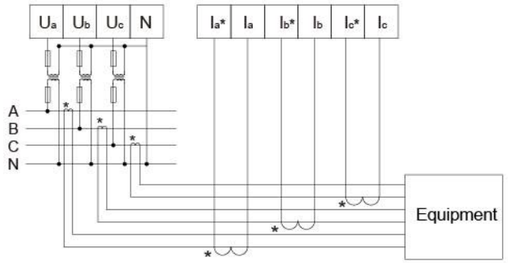
Input	Frequency	45～65Hz
	Nominal voltage	3*220V/380V
	Consumption	≤ 0.5VA
Input	Current	5A,100A
	Communication	RS485(Modbus-RTU)
	Baud rate	1200～38400
Accuracy	Current	class 0.5
	Active power	class 1
	Reactive power	class 2
Outline	L*W*H(mm)	72*97.7*36
Temperature	Operating	-25℃~55℃
	Storing	-40℃~70℃
Humidity		≤95%(No condensation)
Altitude		<2000m

● 6.1.2 Product Functions

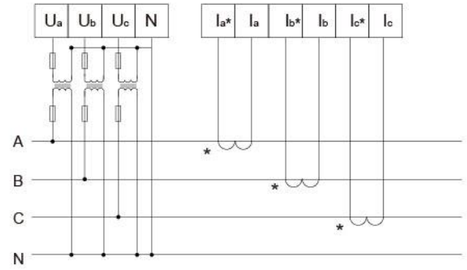
Function	Description
LCD display	8 digits
Measurement of energy	kWh (positive and negative)
	kvarh (positive and negative)
	A, B, C phase positive kWh
Electrical parameters	U,I,P,Q,S,PF,Hz
Harmonic	2-31st voltage and current harmonic
Key programming	4 keys to communication and set parameters
Residual current	1-channel
LED alarm	Over-voltage,over-current,phase failure,DI
Data	Maximum demanded kWh and time happened
SOE	200

● 6.1.3 Wiring

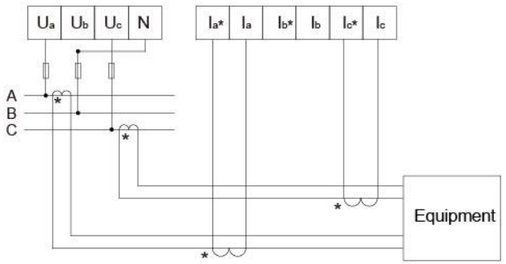




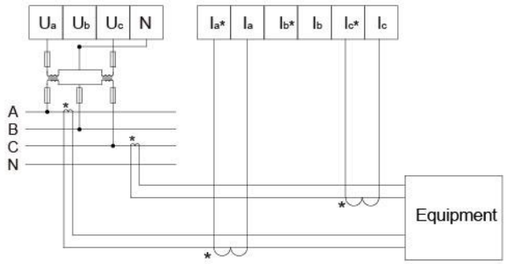
Three-phase four-wire



Three-phase four-wire



Three-phase three-wire



Three-phase four-wire

➢ 6.2 ADW300 Wireless Energy Meter

• 6.2.1 Technical Parameter

Input voltage	Nominal voltage	3*220/380V,3*380V,3*57.7/100V,3*100V
	Frequency	50Hz-60Hz
	Consumption	<10VA or 2W（A phase）,<0.5VA（B phase,C phase）
Input current	Maximum current	6A
	Starting current	0.002A
	Consumption	<2VA
	Accuracy	Class 0.5S
	Temperature accuracy	±2℃
Pulse	Width	80±20ms
	Constant	6400imp/kWh
Temperature	Operating	-25℃~55℃
	Storing	-40℃~70℃
Humidity	≤95%(No condensation)	
Altitude	<2000m	

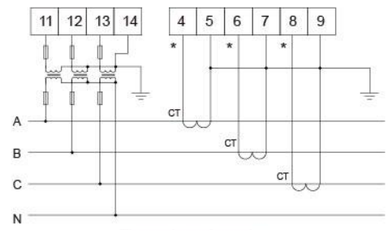
• 6.2.2 Product Functions

Function	Description
LCD display	8 digits
Measurement of energy	kWh (positive and negative)
	kvarh (positive and negative)
	A,B,C phase positive kWh
Electrical parameters	U,I,P,Q,S,PF,Hz
Harmonic	2-31st voltage and current harmonic
Key programming	4 keys to communication and set parameters
Temperature measurement	A, B, C, N four-way temperature measurement (optional T)
DI /DO	4DI/2DO(Selection of K)
Residual current	1-channel
Communication	Infrared
	RS485(Modbus-RTU)(Optional: C)
	470MHz Wireless Transmission (Optional: LR)
	GPRS Communication (Optional: 2G)
	NB-IoT Communication (Optional: NB)

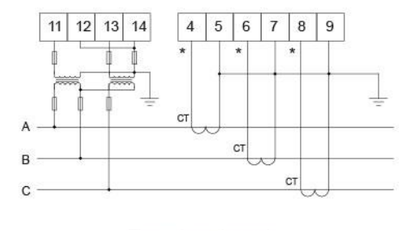
• 6.2.3 Wiring

Three-phase four-wire

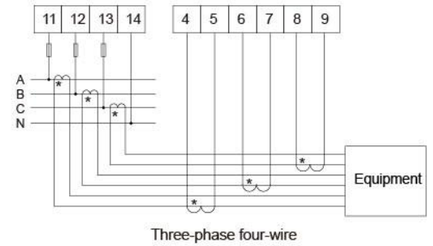
Three-phase three-wire



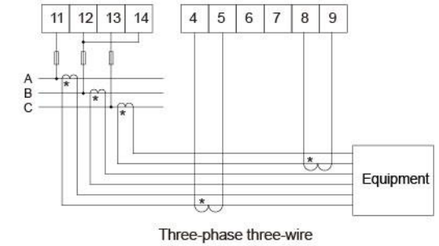
Three-phase four-wire



Three-phase three-wire



Three-phase four-wire

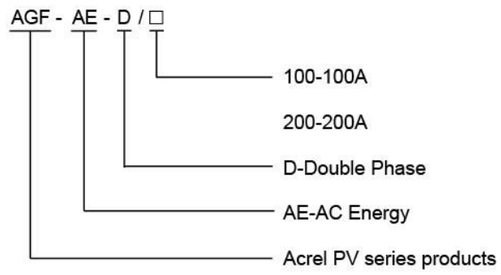


Three-phase three-wire

New Energy

1.AGF-AE Series PV/Solar Inverter Energy Meter

1.1 Model Description



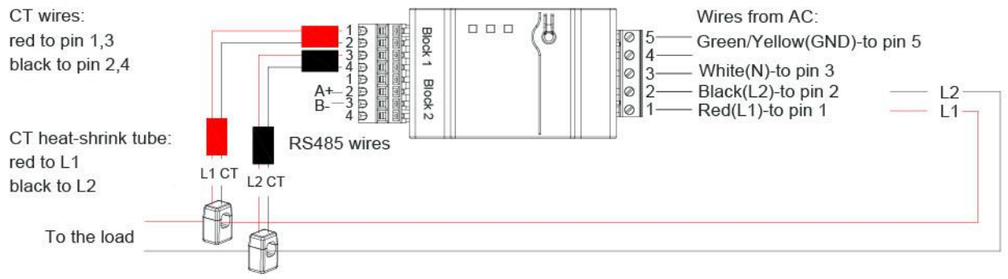
1.2 Technical Parameter

Meter Electrical Service			Units
	AGF-AE-D/100	AGF-AE-D/200	
Rated Voltage-Line to N	120		V
Rated Voltage-Line to Line	208/240		V
Extended Voltage Range	88%~110%		
AC Frequency	60		Hz
Grids Supported	L1/L2/N/PE		
Power Consumption	1.2		W
Communication			
Meter Communication Interfaces	RS 485		
Response Time	≤1		S
Meter Accuracy			
Rated RMS current	100	200	A
1%-100% of CT Current	±0.5	±1	%
Current Transformers			
Number of Supplied Current Transformers	2		
Dimensions	I.D:15 O.D:35	70.5×54.5×39 (H×W×D)	mm
Standard Compliance			
Safety	UL1741		
Installation Specifications			
Dimensions(H×W×D)	54.1×87.8×52		mm
Weight	0.2		kg
Operating Temperature Range	-30~55		℃
Relative Humidity (noncondensing)	5 - 90		%
Mounting Type	DIN-Rail，35mm		

1.3 Product Functions

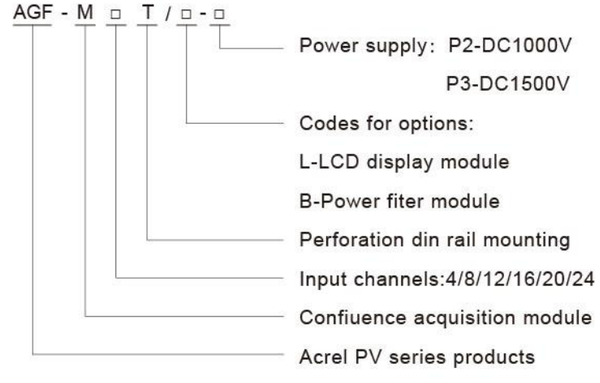
Function	Description
Measurement of energy	kWh(positive and negtive)
	kVarh(positive and negtive)
Electrical parameters	U,I,P,Q,S,PF,Hz
Protocol	RS485 (SUNSPECT)
Supply System	single phase 3-line

1.4 Wiring



2.AGF Series Solar String Monitoring Device

2.1 Model Description



* The power filter module is only used when there are additional filtering requirements for the power supply.

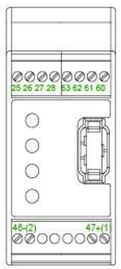
2.2 Technical Parameter

Item	AGF-M4T	AGF-M8T	AGF-M12T	AGF-M16T	AGF-M20T	AGF-M24T
Input channels	4	8	12	16	20	24
Rated current	DC 0~20A					
Response time	1s					
Accuracy	0.5 class					
Temperature coefficient	400ppm					
RS485 communication	RS485/ModBus-RTU protocol，4800/9600/19200/38400bps					
Additional function						
Switch input	3-way input(optocoupler or dry contact mode)					
General technical parameters						
Temperature/ Humidity	Working temperature: -35~+65℃， humidity95%,no condensation, no corrosiongas place; *Display module work temperature:-20~+70℃					
Temperature measurement function	To measure the inner temperature of box （-20℃～100℃）					
Altitude	≤3000m					
Insulation resistance	≥100MΩ					

2.3 Product Functions

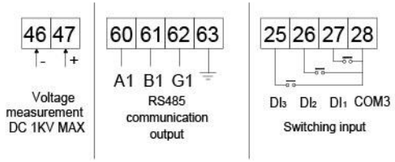
Function	Description
Display	6LED（LCD displayOptional）
Electrical parameters	U、I、P
Measurement of energy	kWh
DI	3DI
Temperature measurement	The inner temperature of power module

2.4 Wiring



DC1000V,DC1500V Power supply module wiring

Wiring of the power supply module



Smart Gateway

1.AWT100 Series Wireless Communication Terminal

1.1 Model Description

AWT - □

2G	WIFI
4GHW	LW868
NB	LW923
CE	



1.2 Technical Parameter

Technical Parameter	Value
Operating voltage	12-24V DC
Operating current	250-400mA@12V
Size	96*67*24mm
Work frecquency band	LTE-FDD: B1 B2 B3 B4 B5 B7 B8 B12 B13 B18 B19 B20 B25 B26 B28 LTE-TDD: B38 B39 B40 B41 UMTS: B1 B2 B4 B5 B6 B8 B19 GSM: B2 B3 B5 B8
Uplink	4G / 2G / NB / CE / LORAWAN
Downlink	RS485

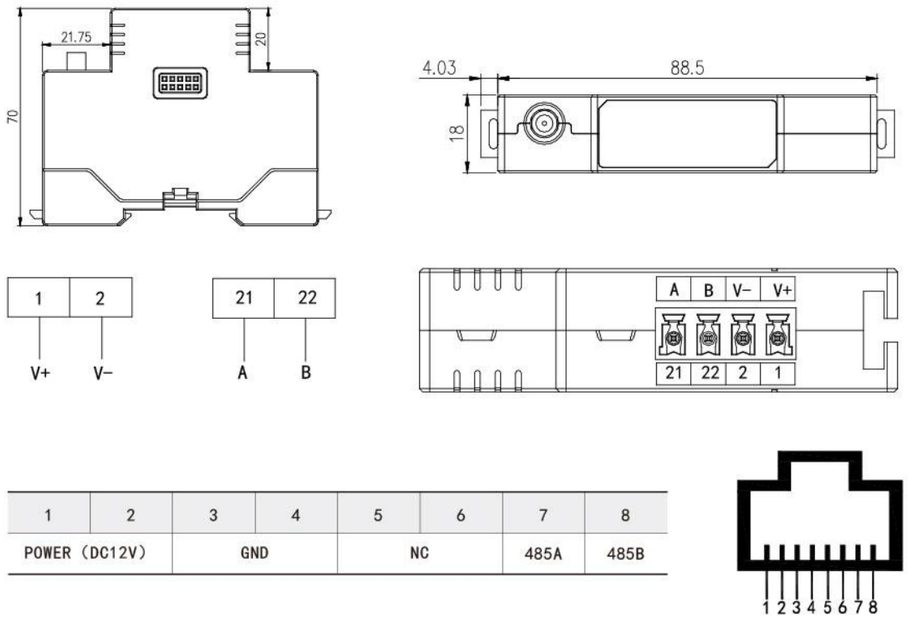
1.3 Product Functions

Product type	Downlink	Uplink
AWT100-2G	RS485	2G
AWT100-4G	RS485	4G
AWT100-NB	RS485	NB
AWT100-CE	RS485	CE
AWT100-WIFI	RS485	WIFI
AWT100-LW868	RS485	LW868
AWT100-LW923	RS485	LW923

Communication protocol:transparent transmission / MQTT(JSON) / MODBUS

Monitoring Device

1.4 Wiring



1	2	3	4	5	6	7	8
POWER (DC12V)		GND		NC		485A	485B

2.ANet Series Smart Gateway

2.1 ANet-1E1S1/1E2S1 Smart IoT Gateway

• 2.1.1 Model Description

ANet - □ - □

- Auxiliary function code
  - None: none
  - 4G : 4G communication
  - LR: Lora downlink wireless communication
  - D : power-down alarm
- Main model :1 E : 1 net port ,
  - 2 S : 2 serial port ,
  - 1: Din rail type
- Intelligent Communication Management Machine Series



Note :1.4G function standard external SMA sucker antenna, standard line length 1.5 meters.

2.Lora function standard external sucker antenna, standard line length 2 meters.

• 2.1.2 Technical parameter

Model	ANet-1E1S1	ANet-1E1S1 -LR	ANet-1E1S1 -4G	ANet-1E1S1 -4G/LR	ANet-1E2S1	ANet-1E2S1 -LR	ANet-1E2S1 -4G	ANet-1E2S1 -4G/LR
Uplink	1 Ethernet	1 Ethernet	1 Ethernet, 4 G 1	1 Ethernet, 4 G 1	1 Ethernet	1 Ethernet	1 Ethernet, 4 G 1	1 Ethernet, 4 G 1
Down	1 RS485 Road	1 RS485 Road, 1 LORA Road	1 RS485 Road	1 RS485 Road, 1 LORA Road	1 RS485 Road	1 RS485 Road, 1 LORA Road	1 RS485 Road	1 RS485 Road, 1 LORA Road
Lora wireless operating frequency	/	410MHz~ 525 MHz	/	410MHz~ 525 MHz	/	410MHz~ 525 MHz	/	410MHz~ 525 MHz
Power supply voltage	AC/DC 220V (85-265V)							
Frequency and Power Consumption	50Hz (45~65 Hz),10 W power consumption							
Security	Power frequency withstand voltage :1 min: 2kV (220V equipment),1.5 kV (24V equipment)							
	Insulation resistance :100 MΩ of input and output > to housing in general test atmosphere							
Environment	Operating temperature :-20℃~+55℃ Storage transport temperature :-25℃~+70							
	Relative humidity :≤95%(+25℃) Altitude :≤2500							
RS485 Serial	1-way coupling isolation				Two-way coupling isolation			
RJ45 network ports	10/100 M adaptive capacity							
2G/3G/4G	/	/	4 mode (2 G/ 4G) all Netcom	4 mode (2 G/ 4G) all Netcom	/	/	4 mode (2 G/ 4G) all Netcom	4 mode (2 G/ 4G) all Netcom
Other interfaces	TF card standard slot, support storage extension, breakpoint continuation							
Electrical performance	IEC61000-4-2 ESD immunity test Class 4							
	Class 4 immunity test of IEC61000-4-4 fast transient pulse group							
	IEC61000-4-5 surge (shock) immunity test class 4							
	IEC61000-4-6 radiation electromagnetic field interference test							
Agreement support	GBT19582-2008 (Modbus、ModbusTCP) 、DL/T645-1997、DL/T645-2007、CJT188-2004、IEC60870-5 (101、103、104) 、MQTT、Support HTTP(s)、XML、Json forwarding format etc.							

2.2 ANet-2E4S1/2E8S1 Communications Management Machine

• 2.2.1 Model Description

ANet - □ - □

- Auxiliary function code
  - None: none
  - 4G : 4G communication
  - LR: Lora downlink wireless communication
  - D : power-down alarm
- Main model :2 E : 2 net port ,
  - 4 S : 4 serial port ,
  - 1: guide rail type
- Intelligent Communication Management Machine Series



• 2.2.2 Technical Parameter

Model	ANet -2E4S1	ANet-2E8S1
Uplink	2 Ethernet communications	
Down	4 RS485 Communications	8 RS485 Communications
Power supply voltage	AC/DC 220V (85-265V)	
	Terminal type DC 24V (12-36 V interval)(order indicated)	
Frequency and Power Consumption	50Hz (45~65 Hz),10 W power consumption	
Security	Power frequency withstand voltage :1 min： 2kV (220V equipment),1.5 kV (24V equipment)	
	Insulation resistance :100 MΩ of input and output > to housing in general test atmosphere	
Environment	Operating temperature :-20℃~+55℃ Storage transport temperature :-25℃~+70	
	Relative humidity :≤95%(+25℃) Altitude :≤2500	
RS485 Serial	4-way coupling isolation	8 channels of optocoupler isolation
RJ45 network ports	2 paths 10/100 M Adaptive	
Other interfaces	RS232 management serial port +1* USB2.0+SD Card standard slot, support storage extension, breakpoint continuation	
Electrical performance	GB/T17626.2-2018 ESD immunity test Class 4	
	GB/T17626.3-2016 RF electromagnetic field radiation immunity test level 3	
	Class 4 immunity test of GB/T17626.4-2018 fast transient pulse group	
	GB/T17626.5-2019 surge (shock) immunity test class 4	
Agreement support	GBT19582-2008（Modbus、ModbusTCP）、DL/T645-1997、DL/T645-2007、CJT188-2004、IEC60870-5（101、103、104）、MQTT、Support HTTP(s)、XML、Json forwarding format etc.	

➢ 2.3 ANet-2E4SM Modular communication management machines

• 2.3.1 Model Description

ANet - □ - □

- Auxiliary function code
  - None: none
  - 4G： 4G communication
  - LR： Lora downlink wireless communication
  - D： power-down alarm
- Main module :2 E： 2 network port ,4 S： 4 serial port,
  - M： modularization
  - M4G： extend 4G function
  - M485： Extension of 4 RS485 Communications
- Intelligent Communication Management Machine Series



• 2.3.2 Technical Parameter

■ Main module technical specifications

Model	ANet-2E4SM	ANet-2E4SM-LR	ANet-2E4SM-D	ANet-2E4SM-LR/D
Uplink	2 Ethernet communications			
Down	4 RS485 Communications	4 RS485、1 LORA Communication	4 RS485 Communications	4 RS485、1 LORA Communication
Lora wireless operating frequency	/	410MHz~525 MHz	/	410MHz~525 MHz
Power supply voltage	DC 12V ~36 V			
Frequency and Power Consumption	50Hz (45~65 Hz),10 W power consumption			
Security	Power frequency withstand voltage: AC 2kV 1min between communication terminal and auxiliary power supply			
	Insulation resistance :100 MΩ> input and output to housing			
Environment	Operating temperature :-20℃~+55℃ Storage transport temperature :-25℃~+70			
	Relative humidity :≤95%(+25℃) Altitude :≤2500			
Serial Interface	4-channel optocoupler isolation RS485+1-channel RS232(test port)			
Ethernet interface	2 paths 10/100 M Adaptive			
USB HOST	One-way USB2.0 high-speed interface, support access U disk for intermittent transmission or wireless WiFi network card (optional)			
TF card interface	Support for hot-plug and plug-and-play breakpoint continuation data storage			
DI acquisition	Input of 8-way passive dry contact switch			
RST key	Short press 2-5 seconds to restart the device, long press more than 5 seconds to restore factory default settings			
Power off alarm	/	/	Support power off to maintain working condition for more than 5 seconds, and send power off alarm	
Electrical performance	GB/T17626.2-2018 ESD immunity test Class 4			
	GB/T17626.3-2016 RF electromagnetic field radiation immunity test level 3			
	Class 4 immunity test of GB/T17626.4-2018 fast transient pulse group			
	GB/T17626.5-2019 surge (shock) immunity test class 4			
Agreement support	GBT19582-2008（Modbus、ModbusTCP）、DL/T645-1997、DL/T645-2007、CJT188-2004、IEC60870-5（101、103、104）、MQTT、Support HTTP(s)、XML、Json forwarding format etc.			

■ Optional module technical specifications

ANet-M485 module	Power supply	RJ45 interface, powered by main module
	Communications	Uplink: RJ45 interface, communication with main module Down :4-way optocoupler isolation RS485
ANet-M4G module	Power supply	RJ45 interface, powered by main module
	Communications	Uplink :2 G/4G all Netcom Downlink: RJ45 interface, communication with main module

3.DTU Data Transmission Module

3.1 Model Description

AF-GSM □ □
- Up load: 4G
- Down load: 300: lora



3.2 Technical Parameter

Technical Parameter	Value
Operating voltage	12-24V DC
Operating current	350-400mA @12V (400mA when dialing)
Size	96*67*24mm
Work frecquency band	LTE-FDD: B1 B2 B3 B4 B5 B7 B8 B12 B13 B18 B19 B20 B25 B26 B28 LTE-TDD: B38 B39 B40 B41 UMTS: B1 B2 B4 B5 B6 B8 B19 GSM: B2 B3 B5 B8
Uplink	4G / 2G
Downlink	LORA(868MHz)

3.3 Product Functions

- Data transmission
- LORA communication / MOBUS-RTU
- 4G telecommunications
- MQTT-JSON

3.4 Wiring



Data Center/Tower/Base Station

1.AMC Series Data Center Monitor Module

1.1 AMC16Z-ZA Data Center Monitor Device



● Technical Parameter

Technical Parameter		Value
Distribution System		AC
Measurement of electrical parameters		A+B independent 2 channels three-phase inlet U,I,P,Q,S,PF,EP,EQ,UN to PG, neutral current 2-63rd harmonic of voltage and current 6 channels passive switch input 2 channels switch output RS485(Modbus-RTU) communication.
Voltage	Nominal	220VAC
	Range	±20%
	Overload	2times lasting 1 second(instantaneous)
Current	CT	XXA/5A
	Range	0～120%
	Overload	1.2 times(continuous), 10 times lasting 1 second(instantaneous)
Input frequency		45～65Hz
Accuracy		Class 0.2(U/I) Class 0.5(P/EP) Class 1(Q/EQ)
Insulation resistance		100MΩ
Switch output		2 channels (3A 250VAC/ 3A 30VDC)
Switch input		6 channels
Communication		RS485(Modbus-RTU)
Installation		DIN 35mm

● Wiring

Terminal No.	Definition	Description	Remark
1	V+	Voltage output	DC 12V
2	V-		
4	IA+	Phase-A current	Three-phase current input of channel A
5	IA-		
6	IB+	Phase-B current	
7	IB-		
8	IC+	Phase-C current	
9	IC-		
10	UN	AC voltage null line	Three-phase voltage input of channel A
11	UA	Phase-A AC voltage	
12	UB	Phase-B AC voltage	

Monitoring Device

Terminal No.	Definition	Description	Remark
13	UC	Phase-C AC voltage	Three-phase voltage input of channel A
PG		Ground	
14	IA+	Phase-A current	Three-phase current input of channel B
15	IA-		
16	IB+	Phase-B current	
17	IB-		
18	IC+	Phase-C current	
19	IC-		
20	UN	AC voltage null line	Three-phase voltage input of channel B
21	UA	Phase-A AC voltage	
22	UB	Phase-B AC voltage	
23	UC	Phase-C AC voltage	
PG		Ground	
30	A	RS485(Modbus-RTU)	Connect to HMI or RS485 hub
31	B		
50	DO1	Switch output	Connect buzzer
51			
52	DO2		Connect indicator light
53			
61	Inlet A	Switch input	OF
62			SD
63	Lightning protection A		Lightning protector A
64	Inlet B		OF
65			SD
66	Lighting protection B		Lighting protector B
69	Common port		Switch common port
71	I1	Leakage current	Channel 1 leakage current
72	I2		Channel 2 leakage current
79	COM		Leakage current common port
81	V-	Temperature&Humidity	Connect WH-3 temperature and humidity sensor
82	DATE		
83	CLK		
84	V+		

➢ 1.2 AMC16MA Data Center Monitor Device



• Technical Parameter

Technical Parameter	Value
Distribution System	AC
Measurement of electrical parameters	Three-phase 2 channels inlet I,U,P,Q,EP,EQ,S
	Single-phase 36 channels outlet (Three-phase12 channels outlet) I,U,P,Q,EP,EQ

Technical Parameter			Value
Busbar voltage	Rated voltage		220V AC
	Range		40～400V AC
	Overload		1.2 times(continuous), 10 times lasting 1 second(instantaneous)
Current	Inlet	CT	XXA/5A
		Range	0～10A
	Outlet	CT	100A/20mA
		Range	0～120%
	Overload		1.2 times for continuous, and 10 times/5 seconds for instantaneous
Frequency			45～65Hz
Accuracy	Inlet		Class 1.0
	Outlet		Class2.0
Auxiliary power supply			AC85-265V/DC100-350V
Insulation resistance			100MΩ
Environment	Temperature		Operation:-15℃～55℃ Storage:-25℃～70℃
	Humidity		Relative humidity≤93%
	Altitude		≤2500m
Switch output			5A 250VAC/5A 30VDC
Communication			RS485(Modbus-RTU)
Installation			DIN 35mm

• Wiring

Terminal No.	Definition	Description	Remark
1	L	AC power supply input	AC220V
2	N		
4	IA1*	Phase-A 1 current	
5	IA1		AC direct grounding
6	IB1*	Phase-B 1 current	
7	IB1		AC direct grounding
8	IC1*	Phase-C 1 current	
9	IC1		AC direct grounding
10	UN	AC voltage null line	
11	UA	Phase-A AC voltage	
12	UB	Phase-B AC voltage	Splicing with 11 in single-phase
13	UC	Phase-C AC voltage	Splicing with 11 in single-phase
14	IA2*	Phase-A 2 current	
15	IA2		AC direct grounding
16	IB2*	Phase-B 2 current	
17	IB2		AC direct grounding supply grounding
18	IC2*	Phase-C 2 current	
19	IC2		AC direct grounding
21	+	Power supply	DC48V
22	-		

Terminal No.	Definition	Description	Remark
30	A1	1* RS485(Modbus-RTU)	
31	B1		
40	A2	2* RS485(Modbus-RTU)	
41	B2		
50		Switch output	
51			
I1～I36	+	Outlet current	
	-		
Addr1	Address 1		Setting method is given in device panel in detail
Addr2	Address 2		
Baud1	Baud rate 1		
Baud2	Baud rate 2		

➢ 1.3 AMC16Z-FAK48 Data Center Monitor Device

• Technical Parameter



Technical Parameter		Value
Distribution System		AC
Measurement of electrical parameters		I,U,P,Q,EP,EQ,S
		2-3rd harmonic
		24 channels on each side (48 in total)
		48DI
		RS485
Current	CT	XXA/50mA
	Range	0～120%
	Overload	1.2 times for continuous, and 10 times/second for instantaneous
Frequency		45～65Hz
Accuracy		Class 0.2(U/I) Class 0.5(P/EP) Class 1(Q/EQ)
Auxiliary power supply		DC12V
Insulation resistance		100MΩ
Environment	Temperature	Operation:-15℃～55℃ Storage:-25℃～70℃
	Humidity	Relative humidity≤93%
	Altitude	≤2500m
Communication		RS485(Modbus-RTU)
Installation		DIN 35mm
Switch input		48DI

• Wiring

Terminal No.	Definition	Description
V+	Auxiliary power supply	Power supply by AMC16Z-ZA
V-		
A	RS485 communication	Connect to HMI
B		
A1	Side-A Current 1	Side A current input
A2	Side-A Current 2	
A3	Side-A Current 3	
GA1	Common port of A-channel current negative pole	
A4	Side-A Current 4	Side A current input
A5	Side-A Current 5	
A6	Side-A Current 6	
GA2	Common port of A-channel current negative pole	
A7	Side-A Current 7	Side A current input
A8	Side-A Current 8	
A9	Side-A Current 9	
GA3	Common port of A-channel current negative pole	
A10	Side-A Current 10	Side A current input
A11	Side-A Current 11	
A12	Side-A Current 12	
GA3	Common port of A-channel current negative pole	
A13	Side-A Current 13	Side A current input
A14	Side-A Current 14	
A15	Side-A Current 15	
GA5	Common port of A-channel current negative pole	
A16	Side-A Current 16	Side A current input
A17	Side-A Current 17	
A18	Side-A Current 18	
GA6	Common port of A-channel current negative pole	
A19	Side-A Current 19	Side A current input
A20	Side-A Current 20	
A21	Side-A Current 21	
GA7	Common port of A-channel current negative pole	
A22	Side-A Current 22	Side A current input
A23	Side-A Current 23	
A24	Side-A Current 24	
GA8	Common port of A-channel current negative pole	

Terminal No.	Definition	Description
B1	Side-B Current 1	Side B current input
B2	Side-B Current 2	
B3	Side-B Current 3	
GB1	Common port of B-channel current negative pole	
B4	Side-B Current 4	Side B current input
B5	Side-B Current 5	
B6	Side-B Current 6	
GB2	Common port of B-channel current negative pole	
B7	Side-B Current 7	Side B current input
B8	Side-B Current 8	
B9	Side-B Current 9	
GB3	Common port of B-channel current negative pole	
B10	Side-B Current 10	Side B current input
B11	Side-B Current 11	
B12	Side-B Current 12	
GB4	Common port of B-channel current negative pole	
B13	Side-B Current 13	Side B current input
B14	Side-B Current 14	
B15	Side-B Current 15	
GB5	Common port of B-channel current negative pole	
B16	Side-B Current 16	Side B current input
B17	Side-B Current 17	
B18	Side-B Current 18	
GB6	Common port of B-channel current negative pole	
B19	Side-B Current 19	Side B current input
B20	Side-B Current 20	
B21	Side-B Current 21	
GB7	Common port of B-channel current negative pole	
B22	Side-B Current 22	Side B current input
B23	Side-B Current 23	
B24	Side-B Current 24	
GB8	Common port of B-channel current negative pole	
KA1	Side-A AC Voltage 1	Side A switch input
KA2	Side-A AC Voltage 2	
KA3	Side-A AC Voltage 3	
KA4	Side-A AC Voltage 4	
KA5	Side-A AC Voltage 5	
KA6	Side-A AC Voltage 6	

Terminal No.	Definition	Description
KA7	Side-A AC Voltage 7	Side A switch input
KA8	Side-A AC Voltage 8	
KA9	Side-A AC Voltage 9	
KA10	Side-A AC Voltage 10	
KA11	Side-A AC Voltage 11	
KA12	Side-A AC Voltage 12	
UNA	Side-A AC Voltage Null Line	
KA13	Side-A AC Voltage 13	Side A switch input
KA14	Side-A AC Voltage 14	
KA15	Side-A AC Voltage 15	
KA16	Side-A AC Voltage 16	
KA17	Side-A AC Voltage 17	
KA18	Side-A AC Voltage 18	
KA19	Side-A AC Voltage 19	
KA20	Side-A AC Voltage 20	
KA21	Side-A AC Voltage 21	
KA22	Side-A AC Voltage 22	
KA23	Side-A AC Voltage 23	
KA24	Side-A AC Voltage 24	
KB1	Side-B AC Voltage 1	Side B switch input
KB2	Side-B AC Voltage 2	
KB3	Side-B AC Voltage 3	
KB4	Side-B AC Voltage 4	
KB5	Side-B AC Voltage 5	
KB6	Side-B AC Voltage 6	
KB7	Side-B AC Voltage 7	
KB8	Side-B AC Voltage 8	
KB9	Side-B AC Voltage 9	
KB10	Side-B AC Voltage 10	
KB11	Side-B AC Voltage 11	
KB12	Side-B AC Voltage 12	
UNB	Side-B AC Voltage Null Line	
KB13	Side-B AC Voltage 13	Side B switch input
KB14	Side-B AC Voltage 14	
KB15	Side-B AC Voltage 15	
KB16	Side-B AC Voltage 16	
KB17	Side-B AC Voltage 17	
KB18	Side-B AC Voltage 18	
KB19	Side-B AC Voltage 19	
KB20	Side-B AC Voltage 20	
KB21	Side-B AC Voltage 21	
KB22	Side-B AC Voltage 22	
KB23	Side-B AC Voltage 23	
KB24	Side-B AC Voltage 24	

2.DTSD Series Multi-Circuits Energy Meter

2.1 Model Description

■ Topic module naming rule

DTSD1352-xSyD

- x-channel three-phase current circuit、y-channel single-phase current circuit
- Ankeri product series



■ Specification and model of matching transformer

Voltage specification	Instrument model	Current specification	Matching current transformer	Note
3×220/380V	DTSD1352 - xSyD	3×250A	AKH-0.66/W-20Y Class 0.2	For three phase
		3×100A	AKH-0.66/Z-15Y Class 0.2	For three phase
		1×100A	AKH-0.66/W-12Y Class 0.2	For single phase

2.2 Technical Parameter

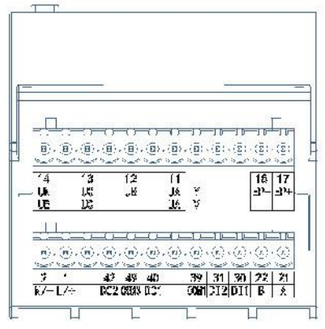
Auxiliary power supply			AC/DC 85～265V；power consumption≤10VA；
Input signal	Frequency		45～65Hz；
	Voltage		Rated value：AC 3×220V/380V；
			overload：1.2 times rated value（continuous）；2 times rated value/1 second；
			power consumption：≤0.5VA（per channel）；
	Current		Rated value：AC 250A、100A；（external closed port transformer）
			overload：1.2 times rated value（continuous）；10times rated value/1 second；
			power consumption：≤0.5VA（per channel）；
Measurement accuracy			Frequency 0.05Hz、voltage and current class 0.5、active energy class 1、reactive energy class 2；2-31 harmonic accuracy：±1%；
Function	Pulse output		Output mode：optocoupler pulse with open collector(one out of two with active input)；
	Communication		RS485 interface、Modbus-RTU protocol/QZTT 1017-2015 technical specification for China Tower smart meter；Baud rate 1200～38400；
	Switching value	Input	4-channels passive dry contact input,built-in power supply；2-channels active wet node input,identify engine oil and power connection(or pulse output)；
		Output	Output mode:relay normally open contact output；Contact rating：AC 250V/3A DC 30V/3A；
Security	Power frequency withstand voltage		>AC 2kV/1min；
	Insulation resistance		Input and output end to housing；

Environment	Working temperature：-20℃～+60℃；
	Storage temperature：-40℃～+70℃；
	Relative humidity：≤95% no condensation；
	altitude：≤2500m；
Electromagnetic compatibility	Better than level 3；

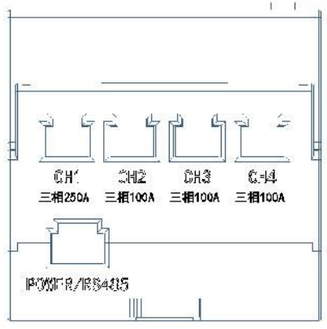
2.3 Product Functions

Function	Description
Measurement of energy	all electrical parameters of x-channel three-phase and y-channel single-phase circuits are measured
Electrical parameters	U、I、F、P、Q、S、PF
Harmonic	2-31st voltage and current harmonic
Extreme value record	U、I、P
Alarm output	Over voltage、Over current、Phase break、DI linkage
Rate setting	4 rate time zone 14
Pulse output	Output mode：optocoupler pulse with open collector(one out of two with active input)；
communication	RS485 interface、Modbus-RTU；Baud rate 1200～38400；
DI	4-channels passive dry contact input,built-in power supply； 2-channels active wet node input,identify engine oil and power connection(or pulse output)；
DO	Output mode:relay normally open contact output； Contact rating：AC 250V/3A DC 30V/3A；

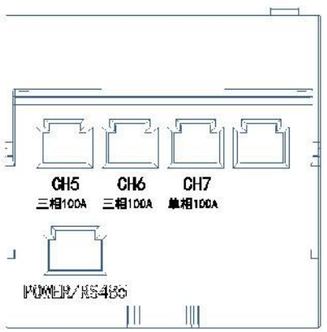
2.4 Wiring



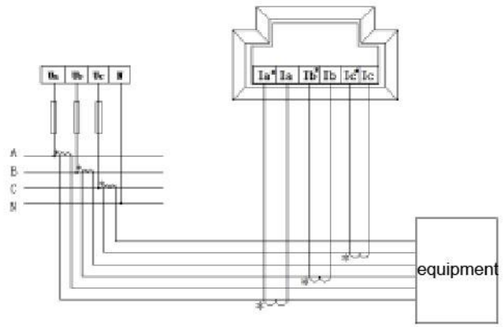
Module upper terminal



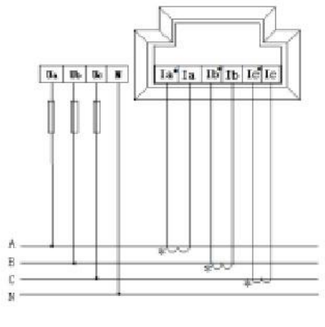
Three-phase250A Three-phase100A Three-phase100A Three-phase100A



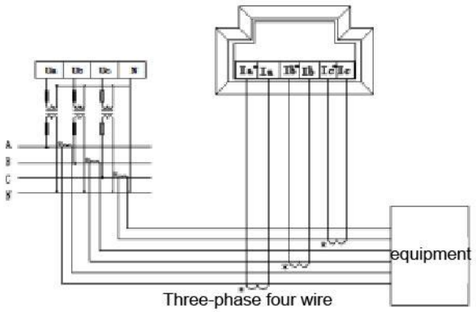
module 2 lower terminal



Three-phase four wire(current secondary access)

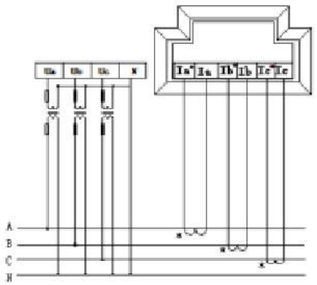


Three-phase four wire(current direct access)



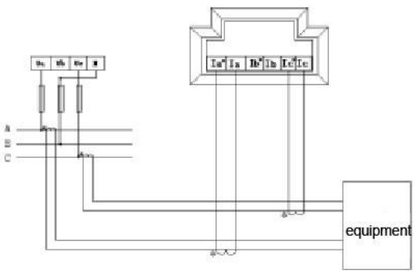
Three-phase four wire

(voltage、current secondary access)



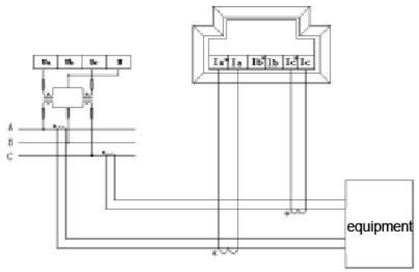
Three-phase four wire

(voltage、current direct access)



Three-phase three wire

(current connected through transformer)



Three-phase three wire

(voltage、current connected through transformer)

3.AMC Series Multi-Circuits DC Energy Meter

3.1 Model Description

NAME	MODEL	INSTALLATION
Base station DC energy meter	AMC16-DETT	35mm din rail



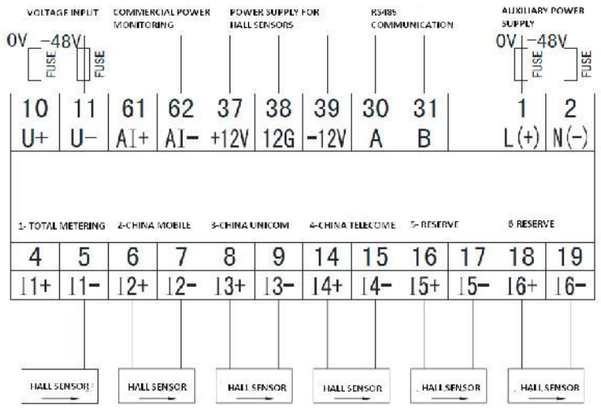
3.2 Technical Parameter

Technical parameter		Technical index
Input	DC rated voltage	Single circuit:-48VDC
	Direct current	Default six channel hall element:total measurement 200A/5V,mobile,telecom,unicom and the first channel reserve 50A/5V,the second channel reserve 100A/5V
	Power supply monitoring	Single circuit:0-5VDC(isolated transmitter output)
	Overload capacity	Voltage:1.2 times continuous,2 times continuous for 1 second; current:1.2 times continuous,10 times continuous for 1 second
Accuracy		1%In≤I≤10%In error±2.5% ; I>10%In error±2%
Measurement resolution		voltage output accuracy is 0.01V,current output accuracy is 0.01A,power output accuracy is 0.01KW,electric energy output accuracy is 0.01kWh
Auxiliary power	Voltage range	-40V～-60VDC
	Power consumption	Complete machine≤2W(no hall power supply output)
Storage		It has the storage function of historical electric energy data and historical alarm information
Insulation resistance		≥40MΩ
Environment	Temperature	Working temperature:-20℃～+60℃;storage temperature:-40℃～+70℃
	Humidity	≤98% no condensation,places without corrosive gas
	Altitude	≤4000m
Protection level		IP20
Flame retardancy of materials		Hot wire temperature of terminal block 960℃±10℃,case glow wire temperature 650℃±15℃

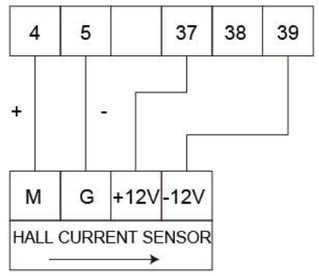
3.3 Product Functions

Function	Description
Electrical parameters	U、I、E、P、T
Display	LED indicator
Alarm output	Low DC voltage、Over DC voltage、Power off alarm、low module voltage、clock error
Timing	Broadcast timing、Remotely timing
communication	Single channel RS485,baud rate 9600bps by default,can be set to 1200 bps、2400 bps、4800 bps
Hall power supply	A set of power output
Clock accuracy	≤0.5s/d（23℃），≤1s/d（-20℃～60℃）

3.4 Wiring



Note: arrow direction should be the same with current direction marked on the sensor .



Wiring diagram of hall sensor with isolation function

Note:hall current sensor is used for DC current bidirectional measurement with accuracy of 1 class.

4.ADW350W Series IoT Energy Meter

4.1 Model Description

ADW350 □ □ - □ / □ □ □

- T：Two-way temperature
- C:RS485
- K:3DO
- NONE;NB:NB-IOT;4G:4G
- A:AC;D:DC
- Empty:Built-in current transformers;
- W:External open type current transformers
- Wireless measuring modle



4.2 Technical Parameter

■ Main technical parameters

Technical parameter		Technical index
Voltage input	Rated voltage	AC: 3×57.7/100V，3×220/380V，3×380/660V，3×100V, 3×380V，3×660V;DC: 48V；
	Reference frequency	AC: 50Hz
	Consumption	<0.5VA (Each phase)
Current input	Input current	AC: 3×20(100)A；DC: 50A，100A
	Consumption	<1VA (Each phase)
Auxiliary power	Power Supply	AC: 85~265V；DC: 48V±20%
	Power consumption	<5W
Measurement performance	Electrical parameter	Class 0.5
	Active energy accuracy	Class 1
	Temperature Range	-40℃~100℃
	Temperature accuracy	±2℃
DO	Contact Rating	5A，AC250V/DC30V
Pulse	Width of pulse	80±20ms
	Pulse constant	AC：400imp/kWh DC：1600imp/kWh
Communication	Wireless	2G；NB；4G
	Infrared communication	The constant baud rate is 1200
	Interface	RS485(A、B)
	Connection mode	Shielded twisted pair conductors
	Protocol	MODBUS-RTU

■ Other technical parameters

Temperature range	Operating temperature	-20℃~55℃
	Storage temperature	-40℃~70℃
Humidity		≤95% (No condensation)
Altitude		<2000m

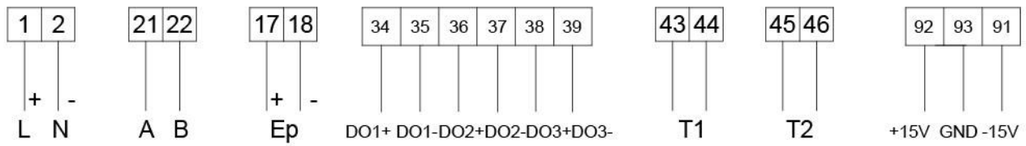
4.3 Product Functions

Function	Description
Display mode	LED
Energy metering	Active kWh (positive and negative)，quadrant reactive power energy
Electrical measurement	U、I、P、Q、S、PF、F
Harmonic function	THDv、Harmonic on 2nd-31st

Function	Description
Pulse output	Active pulse output
Three-phase unbalance degree	Voltage unbalance,current unbalance
Temperature measurement	Two way temperature（Optional:T）
DI/DO	3DO（Optional:K）
External current transformer	External open type current transformer（Optional:W）
Electrical parameter	Undervoltage, undercurrent, overcurrent, underload, etc
Communication	Infrared communication
	RS485（Optional:C）
	NB-IOT（Optional:NB）
	4G（Optional:4G）

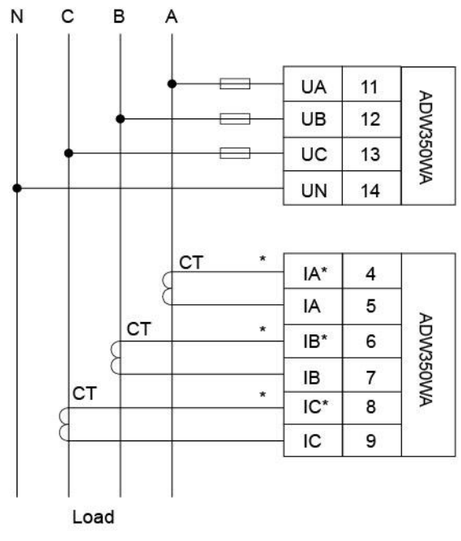
4.4 Wiring

■ Interfaces

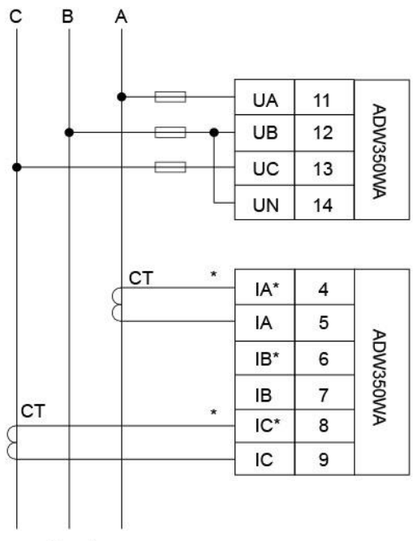


■ Instruction

◆ ADW350WA



3-phase 4-wire



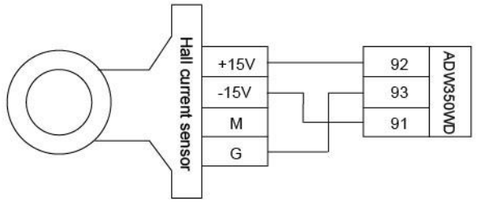
3-phase 3-wire:

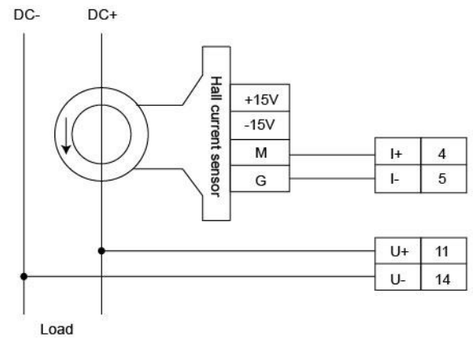
◆ ADW350WD

Three single-phase DC can be connected.

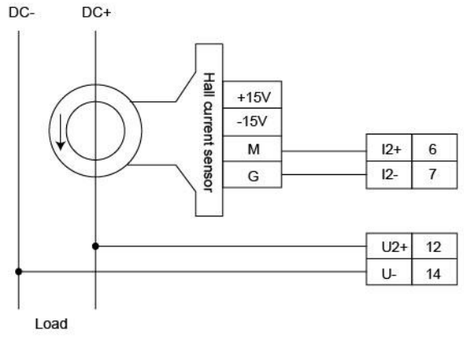
Connection method of Hall current sensor and auxiliary power terminal:

Loop 1st:





Loop 2nd:



Loop 3rd:

