Acrel

APM series Power Meters

Type Description

APM □ - □

— Functional modules of the product

— Models (800、801、810)

Dimension drawings (Unit: mm)

General

APM series power meters of ACREL are power meters that are designed according to IEC standards and synchronized with international advanced technology.

APM series meters have full power measurement, energy statistics, analysis of power quality and network communications and other functions, are mainly used for comprehensive monitoring of the quality of power supply network.

Function Description

Function	Function description		APM800 (class 0.5s)	APM801 (class 0.2s)	APM810 (class 0.5s)
Measured parameters	Total electrical measurement		√	√	√
	Four-quadrant energy				
Pulse output of energy	active/reactive		√	√	√
Demand	real-time and maximum demand of I, P, Q,S (including time stamp)		√	√	√
Extreme value statistics	Extremum of I, UL-L, UL-N, P, Q, S, PF, F, THDi, THDu in this month and last month (including time stamp)		√	√	√
Power quality	Unbalance of I, UL-L, UL-N		√	√	√
	Voltage phase angle, current phase angle		√	√	√
	Total (odd, even) harmonic content of voltage and current		×	×	√
	Harmonic content of voltage and current (2nd-63rd)①		×	×	√
	Voltage crest factor		×	×	√
	Telephone waveform factor		×	×	√
	Current K-factor		×	×	√
Alarm records	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 log	Record the most recent 128 event records, support extended records by TF card		√	√	√
Communication	MODBUS protocol		√	√	√
I/O	2DI+2DO		√	√	√
Extensions	MD82	8DI+2DO	√	√	√
	MLOG	TF card storage	√	√	√
	MA84	8AI+4AO	√	√	√

Installation and operation instruction

Function		Function description	APM800 (class 0.5s)	APM801 (class 0.2s)	APM810 (class 0.5s)
Extensions	MCM	1 RS485/MODBUS-RTU, support master mode or slave mode	√	√	√
	MCP	1 PROFIBUS-DPotocol	√	√	√
	MCE	1 Ethernet, support MODBUS-TCP, HTTP, SMTP, DHCP pr	√	√	√

Note ①: Accuracy of 2~42 times harmonic measurement in the frequency range of 45~65Hz is 1%, accuracy of 43~63 times harmonic measurement in frequency 50Hz is 2%.
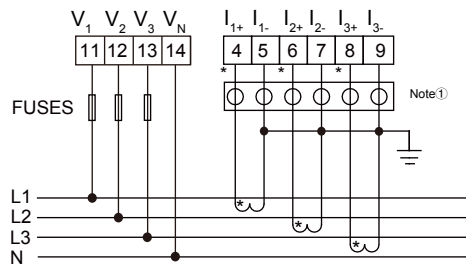
Technical Parameter

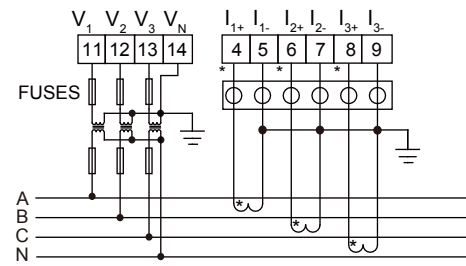| Technical Parameters		Index
Signal	Electrical network	3 phase 3 wire, 3 phase 4 wire
	Frequency	45～65Hz；
	Voltage	Rated value：AC 100V、110V、400V、690V；
		Overload: 1.2 times rated value(continuous); 2 times rated value /1 second;
		Power consumption: < 0.5VA (per channel);
	Current	Rated value: AC 1A, 5A, support 2.5 mm2 line access;
		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/class 0.2s (APM800、APM810/APM801)
	Active power	class 0.5s/class 0.2s (APM800、APM810/APM801)
	Reactive power	class 2
	Harmonic	1%（2nd~42nd）、2%（43rd~63rd）
Switch inputs		Dry contact inputs, built-in power supply;
Relay outputs		Contact type: open contact in main part, changeover contact in module; Contact capacity：AC 250V/3A DC 30V/3A；
Pulse output of energy		Output mode: Optocoupler pulse with open collector; Pulse constant：4000（5A）、8000（1A）imp/kWh；
Analog outputs		DC 0mA～20mA、4mA～20mA、0V～5V、1V～5V output, accuracy class 0.5%, load resistance ≤ 500Ω;
Analog inputs		DC 0mA～20mA、4mA～20mA、0V～5V、1V～5V input, accuracy class 0.5%
Storage card		Standard Capacity:4G,TF Card Up to 32G Capacity;
Communication		RS485 interface/MODBUS-RTU protocol and DLT645 protocol
		PROFIBUS-DP interface/PROFIBUS-DP protocol;
		RJ45 interface (Ethernet) / MODBUS-TCP, HTTP, DHCP and other protocols;
Power supply		Working range: AC/DC 85V～265V or AC/DC 115～415V(P2);
		Power consumption: Power consumption of the main part ≤ 15VA;
Safety	Insulation resistance	Inputs、outputs to the shell>100MΩ；
Electromagnetic compatibility		Meet IEC 61000 standard (Level 4);
Protection level		Display panel IP54

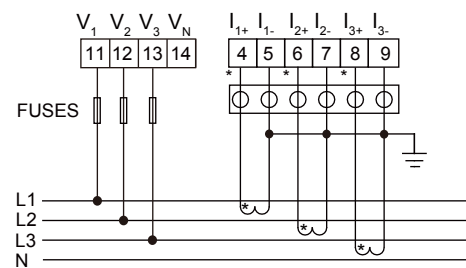| Technical Parameters		Index
Environment		Operating temperature: -20 °C ~ +65 °C;
		Storage temperature: -20°C ~ +70°C;
		Relative humidity: ≤95% without condensation;
		Altitude: ≤2500m;
Standards	IEC 60068-2-1	Environmental Testing-Part 2-1:Tests Test A:Cold IDA
	IEC 60068-2-2	Part 2-1:Tests Test B:Dry heat
	IEC 60068-2-30	Part 2-30:Tests Test Db:Damp heat,cyclic(12+12h)
	IEC 61000-4	Electromagnetic compatibility-Testing and measurement techniques
	IEC 61557-12	Electrical safety in low voltage distribution system up to 1000V a.c. and1500V d.c –Equipment for testing,measuring or monitoring of protective measures- Part12：Performances measuring and monitoring devices(PMD)
	IEC 62053-22	Electricity metering equipment (a.c.)-Particular requirements - Part22:Static meter for active energy（class 0.2s and 0.5s）

Wiring and Installing
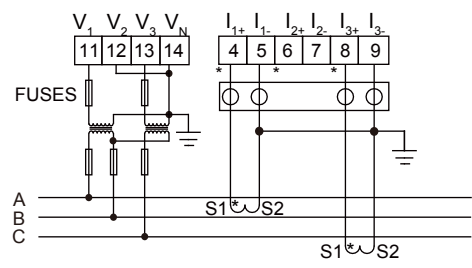
■ Wiring sample of voltage and current

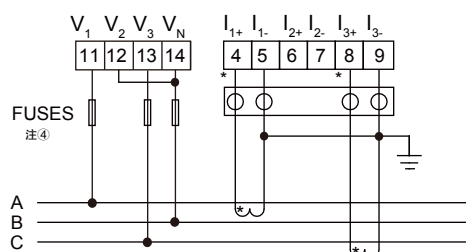3P4W/3CT(Meter is set to 3P4W)

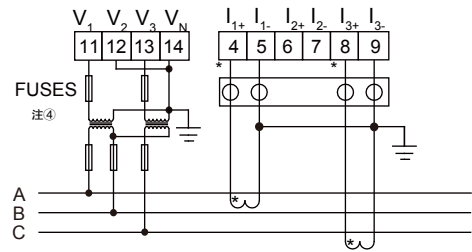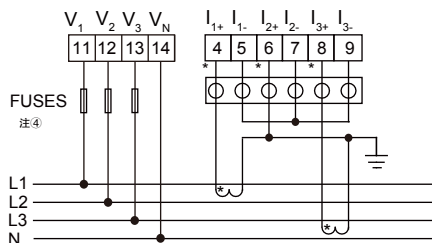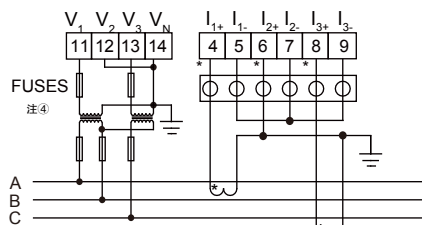3P4W/3PT+3CT(Meter is set to 3P4W)

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)

Installation and operation instruction

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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

70	77	71	72	78	73	30	31	32	33	34	35	36	37	39
	R1			R2		DI1	DI2	DI3	DI4	DI5	DI6	DI7	DI8	COM4
Relay Output						Digital Input								

Analog input and output module

60	61	62	63	64	65	66	67	69	50	51	52	53	59
AI1	AI2	AI3	AI4	AI5	AI6	AI7	AI8	COM2	A01	A02	A03	A04	COM3
Analog Input									Analog Output				

Ethernet module

24	25	26
A2	B2	
RS485		

LAN

PROFIBUS DP

Operation and Display

■ Key function description

Key icon	Key name	Key function
SET	Menu	Return to previous menu
◀	Left	Decrease parameter or switch navigation interface
▶	Right	Increase parameter or switch navigation interface
↵	Enter	Modify and confirm the parameters or enter the next menu

Installation and operation instruction

■ Key function description

Measurement Parameters

The power parameter overview: After the meter is powered on, the current is displayed. Press the left and right keys to switch the display to the following interface (some parameters need to press the enter key to enter the next level):