ANPA4000(F) Series Multi-Channel High Precision Power Analyzer

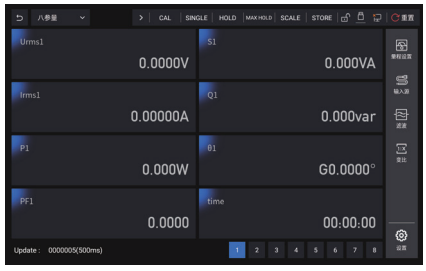


- Eight-channel synchronous power analysis.
- Basic accuracy: 0.03%×Reading+0.05%×Range.
- Sampling Rate: 2MS/s
- Maximum voltage: 1000V (DC1500V).
- Rich specifications: 30A (standard) /5A (optional) , standard BNC interface, and optional sensors.
- Motor test: optional motor test channel
- LCD: full touch screen experience, customizable display interface items, and multiple waveform displays.
- Data storage: customizable storage items, CSV format export, and on-device screenshot saving.
- Perfect size: standard 4U height, compliant with system integration requirements.

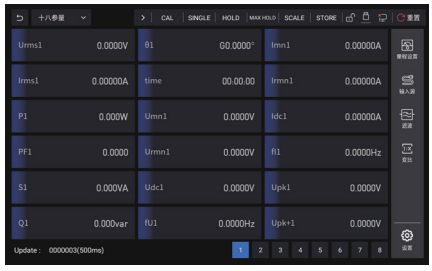
Display Interface /



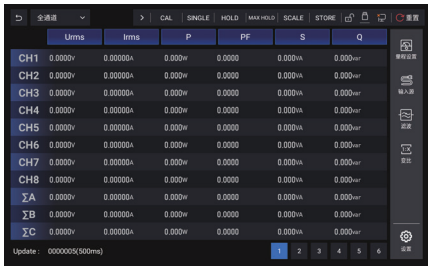
4-item Display



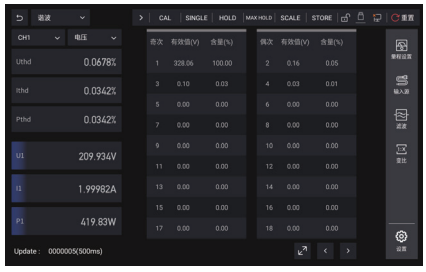
8-item Display



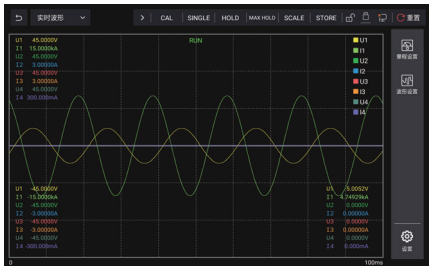
18-item Display



Full Value Display



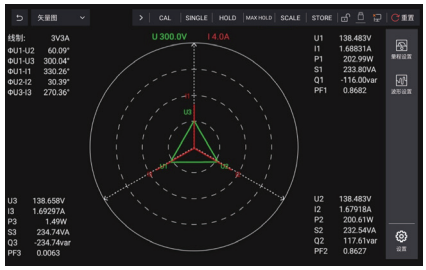
List Display



Waveform Display - Instantaneous Graph



Waveform Display - Trend Graph



Waveform Display - Vector Graph

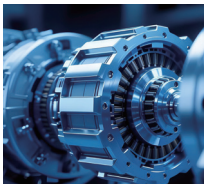


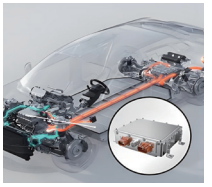
Split Screen Display

Ainuo Power Analyzer Product Series

Product Application /

- Power consumption and mechanical efficiency tests of motor benches and variable frequency motors.
- Measurement of electric vehicle, OBC, and charging piles electrical performance.
- Power, efficiency, and harmonic analysis before and after aging in the production process of photovoltaic inverters.
- Analysis of power, harmonics, and surge currents in switching power supplies.
- Harmonic analysis of power electronics and transformers.





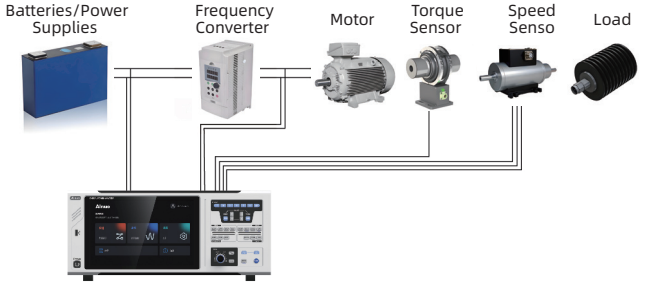



Channel Configuration /

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Single-phase Photovoltaic Inverter	1P2W DC	1P2W AC	1P2W DC	1P2W AC	1P2W	1P2W	1P2W	1P2W
Three-phase Photovoltaic Inverter	3P3W/3V3A/3P4W AC			1P2W DC	3P3W/3V3A/3P4W AC			1P2W DC
Electric Vehicle	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W
Inverter	3P3W/3V3A/3P4W			1P2W	1P2W	1P2W	Torque & Speed Test	
UPS	1P2W Mains Input Voltage	1P2W Battery	3P3W/3V3A/3P4W Three-phase Input			3P3W/3V3A/3P4W Three-phase Output		

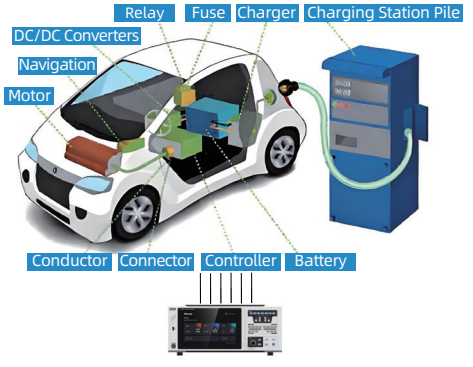
*Any changes to the above parameter specifications will not be notified separately.

Product Application /



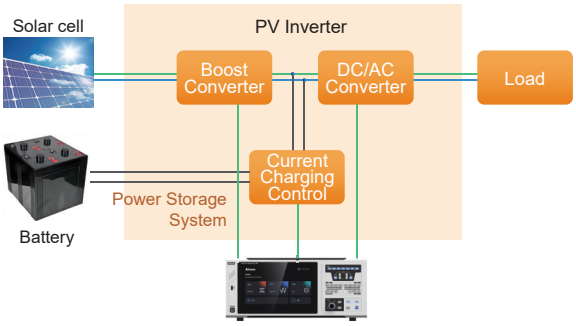
Motor Bench and Variable Frequency Motor Measurement

- Complying with GB/T 18488-2024 Drive Motor Systems for Electric Vehicles
- Capable of simultaneously measuring up to four motors, supporting 500 harmonic measurements and distortion analysis;
- Supporting pulse-type and analog-type speed/torque sensors (optional);
- Torque, speed, mechanical power, efficiency, and electrical phase angle measurement functions (optional).



Electric vehicle electrical performance measurement

- Up to 8 channels for simultaneous measurement, capable of simultaneously detecting multiple parameters. Supports OBC, charging piles efficiency tests, battery charge and discharge performance, power conversion performance, motor performance, etc;
- Supports high voltage and current measurement, with a maximum voltage of 1000V (DC 1500V) and a maximum current of 30A. Larger current sensors can be extended for application;
- Basic accuracy: 0.03%×Reading+0.05%×Range; minimum power resolution 0.1 mW;
- Capable of measuring signal ripple rate, three-phase unbalance rate, power factor, fundamental reactive power and other parameters.

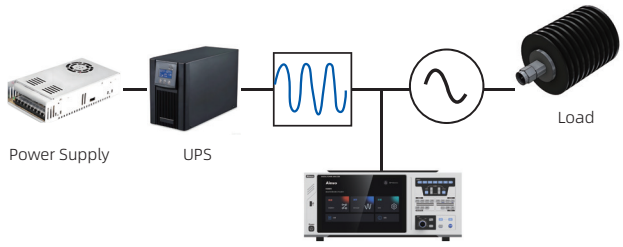


Photovoltaic inverter power measurement

- Comply with testing specification for Photovoltaic Grid-connected Inverter Standard GB/T 37409-2019.
- Compliant with《GB/T 34133-2023 Technical Code for Testing of Energy Storage Converters》
- Supports high voltage and current measurement, with a maximum voltage of 1000V (DC 1500V) and a maximum current of 30A. Larger current sensors can be extended for application.
- Harmonic measurement and flicker measurement based on IEC standards.
- Analysis of up to 500 times harmonics and distortion.
- Bidirectional power measurement for buying and selling electricity.

Various power supply and UPS power measurement

- Current range of 0-30A/5A.
- Power bandwidth DC, 0.5Hz-1MHz.
- Simultaneously measures input and output (single-phase and three-phase) power, and monitors battery charge and discharge.
- Automatic efficiency calculation.



Technical Specifications /

Product Model	ANPA4000(F)	
Type	Power Card	
Current Specifications	30A(optional 5A)	
Wiring Method	1P3W (single-phase 3-wire), 3P3W (3-phase 3-wire, 2 voltage 2 current). 3V3A (3-phase 3-wire, 3 voltage 3 current), 3P4W (3-phase 4-wire)	
Input Impedance Per Phase	Voltage: Approximately 10MΩ; current direct input: 30A: approximately 10mΩ 5A: approximately 100mΩ; current sensor input: approximately 1MΩ	
Sampling Rate	2MS/s	
Full Range Peak Factor	3 or 6	
Voltage Rated Range (Direct Input)	15/30/60/100/150/300/600/1000*[V](peak factor 3) 7.5/15/30/50/75/150/300/500*[V] (peak factor 6) *1,000V full range peak factor is 1.5	
Current Rated Range (Direct Input)	30A:1/2/5/10/20/30*[A](peak factor 3) 5A:100m/200m/500m/1/2/5*[A](peak factor 3) 30A:500m/1/2.5/5/10/15*[A](peak factor 6) 5A: 50m/100m/250m/0.5/1/2.5*[A](peak factor 6)	
Current Rated Range (Sensor Input)	200m/500m/1/2/5/10[V] (peak factor 3) 100m/250m/500m/1/2.5/5[V] (peak factor 6)	
Voltage/Current Measurement Range	(1%～110%)*Range	
Power Factor Range	±（0.0001~1.0000）	
Voltage Measurement Accuracy	DC 0.5Hz≤f < 45Hz 45Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤50kHz 50kHz < f≤100kHz 100kHz < f ≤ 500kHz 500kHz < f ≤ 1MHz	±(0.05% * Reading + 0.05% * Range) ±(0.03% * Reading + 0.05% * Range) ±(0.03% * Reading + 0.05% * Range) ±(0.1% * Reading + 0.1% * Range) ±(0.3% * Reading + 0.1% * Range) ±(0.6% * Reading + 0.2% * Range) ±[(0.006 × f)% * Reading + 0.5% * Range] ±[(0.022 × f - 8)% * Reading + 1% * Range]
Current Measurement Accuracy	DC 0.5Hz≤f < 45Hz 45Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤50kHz 50kHz < f≤100kHz 100kHz < f ≤ 500kHz 500kHz < f ≤ 1MHz	±(0.05% * Reading + 0.05% * Range) ±[(0.03% * Reading + 0.05% * Range)+ (2μA*)] ±[(0.03% * Reading + 0.05% * Range)+ (2μA*)] ±(0.1% * Reading + 0.1% * Range) ±(0.3% * Reading + 0.1% * Range) ±(0.6% * Reading + 0.2% * Range) ±[(0.006 × f)% * Reading + 0.5% * Range] ±[(0.022 × f - 8)% * Reading + 1% * Range]
Active Power Measurement Accuracy	DC 0.5Hz≤f < 45Hz 45Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤50kHz 50kHz < f≤100kHz 100kHz < f ≤ 500kHz 500kHz < f ≤ 1MHz	±(0.05% * Indicating value + 0.05% * Range) ±(0.08% * Indicating value + 0.1% * Range) ±(0.05% * Indicating value + 0.05% * Range) ±(0.2% * Indicating value + 0.1% * Range) ±(0.3% * Indicating value + 0.2% * Range) ±(0.7% * Indicating value + 0.3% * Range) ±[(0.02 × f)% * Reading + 1% * Range] ±[(0.04 × f)% * Reading + 3% * Range]

*Any changes to the above parameter specifications will not be notified separately.

Type		Power Card
Active Power Measurement range		00.02W-6.6kW/phase @ 220V, PF=0.01-1 (30A board card)
Highest Resolution of Active Power		30A: 1mW; 5A:0.1mW
Frequency Measurement Range		DC, 0.5Hz -1MHz
Frequency Measurement Accuracy		±0.06%×Indicating value
Harmonic Measurement		10Hz-2.6kHz, maximum 500th harmonic content, total distortion
Energy Measurement Range		0-99999MWh (resolution: 1mWh/0.01mAh)
Energy Measurement Accuracy		±0.2%×Indicating value
Energy Measurement Timing		9999 hours 59 minutes 59 seconds
Filter Function		Frequency filtering optional: 500 Hz, 10 kHz, 100 kHz, 1 MHz,line filtering optional: 100 ~ 10 kHz (step 100 Hz), 50 kHz, 100 kHz.
Voltage and Current Ratio Range		1.00-50000.00
External Input Ratio		0.10-100.00
Data Update Cycle		10m/20m/50m/100m/200m/500m/1/2/5/10[s]
Control Interface		Test cycle synchronization interface (compatible with trigger lock function), standard configuration: RS-232, LAN; optional: RS-485
Communication Protocol		MODBUS\TCP MODBUS\SCPI
Volume	Overall Dimension (W*H*D mm)	426*175*462
	Opening Size(W*H mm)	426*175
Foot Height		17.5 mm
Weight		Approximately 20kg
Whole Unit Power Consumption		66W

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Type	Motor Card	
Input Interface	Insulated BNC	
Input Resistance	Approximately 1 MΩ	
Input Channel	**Single Motor (Speed: Pulse)**	
	ChA(Torque)	Analog/Pulse Input
	ChB(SpeedA)	Pulse A-phase (Rotational Speed)
	ChC(SpeedB)	Pulse B-phase (Rotation Direction)
	ChD(SpeedZ)	Pulse Z Phase (Electrical Angle Reference)
	Single Motor (Speed: Analog)	
	ChA(Torque)	Analog/Pulse Input
	ChB()	
	ChC(Speed)	Analog/Pulse Input
	ChD()	
	Dual Motors	
	ChA(Torque)	Analog/Pulse Input
	ChB(Speed)	Pulse Input
	ChC(Torque)	Analog/Pulse Input
	ChD(Speed)	Pulse Input
Input Type	**Analog Input**	
	Rated Range	1/2/5/10/20*[V]
	Measurement Range	(1%-110%)* range
	Maximum Permissible Input	22V
	Sampling Rate	Approximately 200 KS/s
	Measurement Accuracy	±(0.05% * indicating value + 0.05% * range)
	Pulse Input	
	Rated Range	10V
	Amplitude Range	±12Vpeak
	Detection Level - H Level	≥2V
	Detection Level - L Level	≤0.8V
	Pulse Width	≥500ns
	Frequency Range	2Hz ~ 1MHz
	Measurement Accuracy	±(0.05% * indicating value + 0.001Hz)

*Any changes to the above parameter specifications will not be notified separately.

- [Conditions]Temperature: 23±5℃, humidity: 30%-75%RH, input waveform: sine wave, common mode voltage: 0V, line filter: OFF, frequency filter: ON for frequencies below 440Hz, power factor λ: 1. peak factor: 3. After warming up. Under wiring conditions, after zero adjustment or range change.
- In the measurement accuracy formula, f represents frequency in kHz.
- When the data update rate is 10ms、20ms、50ms、100ms, add 0.03% of the reading to all accuracies.
- Due to the effect of temperature changes after zero adjustment or range change:

Add 0.02%/℃ to voltage DC accuracy and range, add 500μA/℃ to current DC accuracy, add 50μV/℃ to external sensor DC accuracy, and for power DC accuracy, add the product of the voltage and current effects.