AN87660(F) Series Multi-Channel High Precision Power Analyzer



Product Features

- Six-channel synchronous power analysis.
- Basic Accuracy: 0.05% of reading + 0.05% of range.
- Measurement Bandwidth: DC, 0.5Hz~100kHz.
- Sampling Rate: 200kSps.
- Maximum Voltage: Standard 1000V (DC1500V).
- Maximum Current: 20A (standard) 50A/5A/1A (optional), support for mixed configurations, optional sensors available.
- LCD Display: Full touchscreen experience, customizable display interface, waveform display.
- Data Storage: Customizable storage items, export in CSV format.
- Perfect Size: Standard 3U height, meets system integration requirements.

Channel Configuration

The multi-channel power analyzer supports various wiring configurations, including 1P2W, 1P3W, 3P3W, 3V3A, 3P4W, etc.

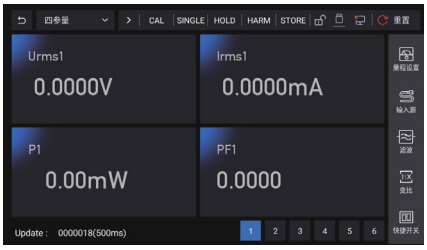
Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
1P2W Single-Phase Two-Wire	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W
1P3W Single-Phase Three-Wire	1P3W	1P3W	1P3W	1P3W	1P3W	
3P3W Three-Phase Three-Wire	3P3W	3P3W	3P3W	3P3W	3P3W	
3V3A Three-Phase Three-Wire	3V3A	3V3A	3V3A	3V3A		
3P4W Three-Phase Four-Phase	3P4W	3P4W	3P4W	3P4W		

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

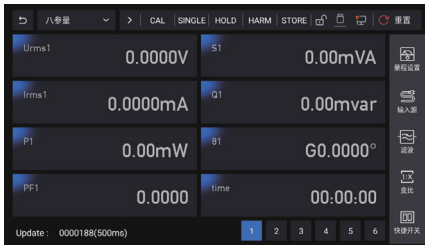
Typical Application

- Analysis of standby power consumption and power for single-phase/three-phase household and commercial appliances.
- Analysis of power, efficiency, and harmonics for photovoltaic inverters.
- Measurement of electrical performance for electric vehicles and charging piles.
- Power and harmonics analysis for power electronics, transformers, and generators.
- Power and harmonics analysis for variable frequency drives and variable frequency motors.
- Analysis of power, harmonics, and surge current for switching power supplies.
- Power analysis for lighting systems and LED lighting.

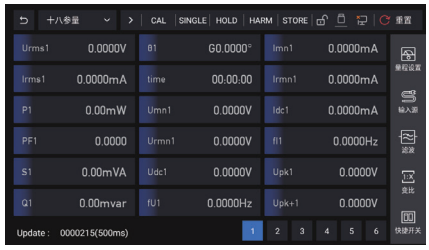
Display Interface



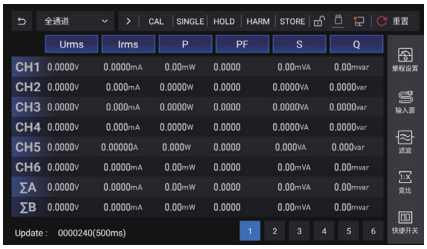
4-item Display



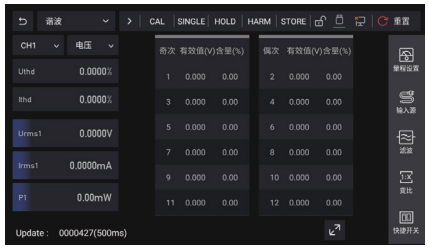
8-item Display



18-item Display



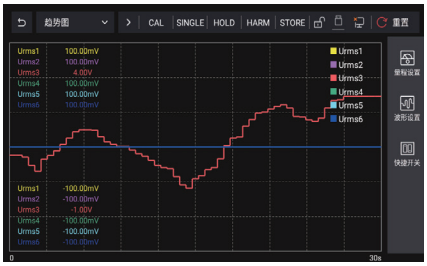
Full Numerical



List Display



Waveform Display



Waveform Display

Product Application /

Photovoltaic Inverter Power Measurement

- Complies with "GB/T 37409-2019 Technical Specification for Testing of Photovoltaic Grid-Connected Inverters"
- Voltage range: 0~1000V (DC1500V)
- Current range: 0~50A/current sensor
- Capable of simultaneously measuring input, output (single-phase, three-phase) power, and power factor
- Automatic efficiency calculation
- 100th harmonic, distortion analysis
- Bidirectional power measurement for buying and selling electricity

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Single-phase PV Inverters	1P2W DC	1P2W AC	1P2W	1P2W	1P2W	1P2W
Three-phase PV Inverters	3P3W/3V3A/3P4W AC			1P2W DC	1P2W	1P2W

Electric Vehicle Electrical Performance Measurement

- Multi-channel, capable of simultaneously detecting multiple parameters: Charging piles efficiency testing, battery charge and discharge performance, power conversion performance, motor performance, etc.
- AC/DC, maximum current 50A, expandable with larger current sensors.
- Basic Accuracy 0.05% of reading + 0.05% of range, minimum power resolution 0.1mW
- Capable of measuring instantaneous effective value, average value, peak value, energy consumption, etc., of AC and DC signals.

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Electric Vehicle	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W

Frequency Converters Power Measurement

- Complies with GB12668 standard
- Power bandwidth: DC, 0.5Hz~100kHz
- Current range: 0~50A/current sensor
- Capable of simultaneously measuring input and output power
- 100th harmonic, distortion analysis

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Frequency Converter	3P3W/3V3A/3P4W			3P3W/3V3A/3P4W		

Power Supplies, UPS Power Measurement

- Current range: 0~1A/5A/20A/50A
- Power bandwidth: DC, 0.5Hz~100kHz
- Capable of simultaneously measuring input, output (single-phase, three-phase) power, monitoring battery charge and discharge
- Automatic efficiency calculation

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
UPS	1P2W Mains Input	1P2W Battery	1P2W Battery	3P3W/3V3A/3P4W Power Supply Output		

Household Appliance Performance Evaluation, Standby Power Consumption Measurement

- Complies with IEC 62301-2011 standard
- Current range: 0~1A/5A/20A/50A, capable of measuring rated power and standby power
- Minimum power resolution: 0.1mW
- 100th harmonic, distortion analysis

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Household Appliances	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W
Commercial Appliances	3P4W			3P4W		

Measurement of Lighting and LED Power

- Current range: 0~1A/5A/50A
- Minimum power resolution: 0.1mW
- Can measure input and output power, power factor, efficiency of the driver power supply
- 100th harmonic, distortion analysis

Wiring Method	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	通道6
Lighting	1P2W	1P2W	1P2W	1P2W	1P2W	1P2W

Product Specifications /

Product Model	AN87660(F)	
Measurement Channels - x	1 ~ 6	
Wiring Method	1P2W (Single-phase 2-wire) 1P3W (Single-phase 3-wire) 3P3W (3-phase 3-wire, 2 voltage 2 current) 3P3W (3V3A) (3-phase 3-wire, 3 voltage 3 current) 3P4W (3-phase 4-wire)	
Measurement Parameters	Voltage (U), Current (I), Active Power (P), Reactive Power (Q), Apparent Power (S), Power Factor (λ), Voltage Frequency (fU), Current Frequency (fI), Phase Angle (Φ), Efficiency (η), Total Energy (Wh), Forward Energy (Wh+), Reverse Energy (Wh-), Current Integration (Ah), 50th Harmonic Analysis (HDF), Voltage and Current Total Harmonic Distortion (THD), Peak Voltage (Vpk), Peak Current (Ipk), Voltage Peak Factor (CfU), Current Peak Factor (CfI)...	
Input Impedance	Voltage: Approximately 2MΩ, Direct Current Input: Approximately 2.5mΩ (50A specification), Current Sensor Input: Approximately 100kΩ	
AD Sampling Rate	Around 200kS/s	
Peak Crest Factor at Full Range	3 or 6	
Voltage Rated Range (Direct Input)	When the crest factor is 3: 15/30/60/100/150/300/600/1000*[V],When the crest factor is 6: 7.5/15/30/50/75/150/300/500*[V], *The maximum range crest factor is 1.5	
Current Rated Range (Direct Input)	When the crest factor is 3: 20A current: 500m/1/2/5/10/20*[A] Optional: 50A current: 1/2/5/10/20/50*[A]; 5A current: 100m/200m/500m/1/2/5*[A]; 1A current: 20m/50m/100m/200m/500m/1*[A] When the crest factor is 6: 20A current: 250m/0.5/1/2.5/5/10*[A] Optional: 50A current: 0.5/1/2.5/5/10/25*[A] 2; 5A current: 50m/100m/250m/0.5/1/2.5*[A]; 1A current: 10m/25m/50m/100m/250m/0.5*[A] *The maximum range crest factor is 1.5	
Current Rated Range (BNC Sensor)	Optional: 200m/500m/1/2/5/10[V]	
Voltage, Current Range Accuracy Range	(1% ~ 110%)*×range *For voltage 1000V and current maximum range, the accuracy range is (1% to 100%) * range	
Power Factor Range	±(0.001 ~ 1.000)	
Voltage Measurement Accuracy	DC 0.1Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤10kHz 10kHz < f≤100kHz	±(0.05% × display value+0.05% × range) ±(0.05% × display value+0.05% × range) ±(0.1% × display value+0.1% × range) ±({0.1+0.05×(f-1)}% × display value+0.2% × range) ±({0.5+0.04×(f-10)}% × display value+0.3% × range)
Current Measurement Accuracy	DC 0.1Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤10kHz 10kHz < f≤100kHz	±(0.05% × display value+0.05% × range) ±(0.05% × display value+0.05% × range) ±(0.1% × display value+0.1% × range) ±((0.1×f)% display value+0.2% × range) ±({1+0.08×(f-10)}% × display value+0.3% × range)
Power Measurement Accuracy	DC 0.5Hz≤f < 45Hz 45Hz≤f≤66Hz 66Hz < f≤1kHz 1kHz < f≤10kHz 10kHz < f≤50kHz 50kHz < f≤100kHz	±(0.05% × display value+0.05% × range) ±(0.1% × display value+0.1% × range) ±(0.05% × display value+0.05% × range) ±(0.2% × display value+0.1% × range) ±({0.2+0.1×(f-1)}% × display value+0.2% × range) ±({0.2+0.1×(f-1)}% × display value+0.3% × range) ±({5.1+0.18×(f-50)}% × display value+0.3% × range)
Active Power Resolution	0.1mW	
Frequency Measurement Range	DC, 0.5Hz ~ 100kHz	
Frequency Measurement Accuracy	±0.1% × display value	
Harmonic Measurement	11Hz to 600Hz, 1 to 100th harmonic content, total distortion	
Energy Measurement Range	0 to 999999MWh (Resolution: 1mWh / 0.01mAh)	
Energy Measurement Accuracy	±(0.1% × display value + 0.1% × full scale)	
Extended Uncertainty	Voltage, current, power, frequency, and energy accuracy ≤ 0.20%	
Filtering Function	500Hz and 5.5kHz voltage line, current line, and frequency filtering	
Ratio Function	1 ~ 50000	
Data Update Cycle	100m / 200m / 500m / 1/ 2 / 5 /10[s]	
Control Interface	Standard: RS-232, Digital Input/Output Interface, Ethernet Port; Optional: RS-485, GPIB	
Display	7-inch LCD touchscreen	
Volume — Overall Dimension (W*H*D mm)	426* 132.5* 430.3	
Volume — Opening Size (W*H mm)	422*128.5	
Base Height	17.5 mm	
Total Weight	Around7.5 kg	

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

- [Conditions]Temperature: 23±5℃, Humidity: 30%~75%RH, Input Waveform: Sinusoidal Wave, Common Mode Voltage: 0V, Line Filter: OFF, Frequency Filter: ON below 440Hz, Power Factor λ: 1, Crest Factor: 3. After preheating, under wiring conditions, zero adjustment or change of range.
- In the measurement accuracy formula, f represents frequency, with unit kHz.
- When the data update rate is 100ms, all accuracies are added to 0.05% of the reading.
- Due to the influence of temperature changes after zero adjustment or range change:
  Voltage DC accuracy increases by 0.02%/℃ of the range, Current DC accuracy increases by 500μA/℃, External sensor DC accuracy increases by 50μV/℃, Power DC accuracy increases by the product of voltage and current influences.