

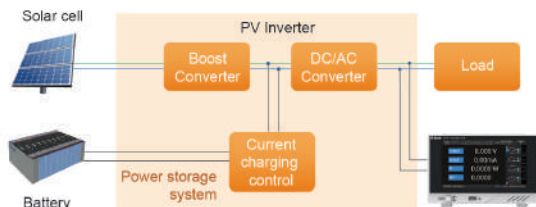
Compact Multi-channel Power Analyzer AN87400G(F)



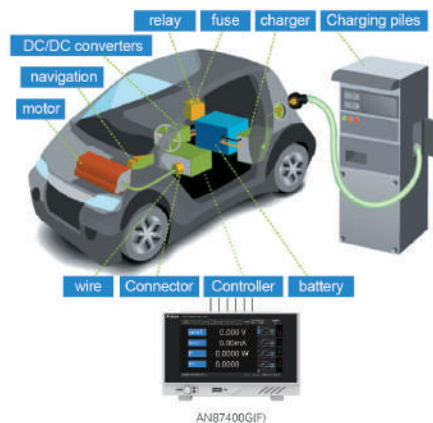
- Basic accuracy:** 0.05% of reading + 0.05% of range
- Measurement bandwidth:** DC, 0.5Hz - 100kHz
- Sampling rate:** 200kSps
- Maximum voltage:** standard 1000V, optional 1500VDC
- Maximum current:** 20A (standard) 5A (optional) , supports mixed combinations, optional sensor configuration
- LCD Display:** touch screen experience, customizable display interface items, and waveform display
- Data storage:** customizable storage projects, CSV format export
- Perfect size:** 3U half-width size, meeting system integration requirements

Channel Configuration

Wiring method	Channel 1	Channel 2	Channel 3	Channel 4
Single-phase photovoltaic inverter	1P2W DC	1P2W AC	1P2W	1P2W
Three-phase photovoltaic inverter	3P3W/3V3A/3P4W AC			1P2W DC
Electric vehicles	1P2W	1P2W	1P2W	1P2W

Product Application

Photovoltaic inverter power measurement

- Complying with Testing Specification for Photovoltaic Grid-connected Inverter (GB/T 37409-2019)
- Voltage range: 0-1,500V
- Current range: 0-20A/current sensor
- Capable of simultaneous measuring input, output (single-phase and three-phase) power, and power factor
- Automatic efficiency calculation
- Analysis of 100 times harmonics and distortion.
- Bidirectional power measurement for buying and selling electricity


Electric vehicle electrical performance measurement

- Multi-channel, capable of simultaneously detecting multiple parameters: OBC efficiency testing, charging station efficiency testing, battery charging and discharging performance, power conversion performance, motor performance, etc.
- AC/DC, with maximum current 20A, expandable to larger current sensors.
- High precision, with basic precision 0.05% and minimum power resolution 0.1mW.
- Capable of measuring instantaneous effective value, average value, peak value of AC/DC signals, energy consumption, etc.

Technical Specifications

Model	AN87400G(F)-X
Measurement Channels - x	1 ~ 4
Wiring Method	1P2W (single-phase 2-wire), 1P3W (single-phase 3-wire), 3P3W (three-phase 3-wire, 2 voltage 2 current), 3P3W (3V3A) (three-phase 3-wire, 3 voltage 3 current), 3P4W (three-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), 100 times harmonic distortion factor (HDF), total harmonic distortion (THD) of voltage and current, peak voltage (Vpk), peak current (IpK), voltage peak factor (CfU), current peak factor (CfI) ...
Input Impedance	Voltage: approximately 2MΩ, Current direct input: approximately 10mΩ Current sensor input: approximately 100kΩ
AD Sampling Rate	Approximate 200K/s
Full range peak factor	3 or 6
Voltage rated ranges (direct input)	When the peak factor is 3: 15/30/60/100/150/300/600/1000 * [V] When the peak factor is 6: 7.5/15/30/50/75/150/300/500 * [V] * Full range peak factor is 1.5
Current rated ranges (direct input)	When the peak factor is 3: 20A current specifications: 500m/1/2/5/10/20 * [A] 5A current specifications: 100m/200m/500m/1/2/5 * [A] 1A current specifications: 20m/50m/100m/200m/500m/1 * [A] When the peak factor is 6: 20A current specifications: 250m/0.5/1/2.5/5/10 * [A] 5A current specifications: 50m/100m/250m/0.5/1/2.5 * [A] 1A current specifications: 10m/25 m/50m/100m/250m/0.5 * [A] * Full range peak factor of above specifications is 1.5
Current rated ranges (BNC sensor)	When the peak factor is 3: 200m/500m/1/2/5/10 [V] When the peak factor is 6: 100m/250m/0.5/1/2.5/5 [V]
Voltage and current range accuracy range	(1% - 110%) * range * The accuracy range for voltage of 1,000V and current of 20A is (1% - 100%) * range.
Power factor range	± (0.001 - 1.000)
Voltage Measurement Accuracy	DC ±(0.05% × display value + 0.05% × range) 0.1Hzsf66Hz ±(0.05% × display value + 0.05% × range) 66Hz<f<1kHz ±(0.1% × display value + 0.1% × range) 1kHz<f<10kHz ±([0.1 + 0.05 × (f - 1)]% × display value + 0.2% × range) 10kHz<f<100kHz ±([0.5 + 0.04 × (f - 10)]% × display value + 0.3% × range)
Current Measurement Accuracy	DC ±(0.05% × display value + 0.05% × range) 0.1Hzsf66Hz ±(0.05% × display value + 0.05% × range) 66Hz<f<1kHz ±(0.1% × display value + 0.1% × range) 1kHz<f<10kHz ±([0.1 + f]% display value + 0.2% × range) 10kHz<f<100kHz ±([1 + 0.08 × (f - 10)]% × display value + 0.3% × range)
Power Measurement Accuracy	DC ±(0.05% × display value + 0.05% × range) 0.5Hzsf<45Hz ±(0.1% × display value + 0.1% × range) 45Hzsf66Hz ±(0.05% × display value + 0.05% × range) 66Hz<f<1kHz ±(0.2% × display value + 0.1% × range) 1kHz<f<10kHz ±([0.2 + 0.1 × (f - 1)]% × display value + 0.2% × range) 10kHz<f<50kHz ±([0.2 + 0.1 × (f - 1)]% × display value + 0.3% × range) 50kHz<f<100kHz ±([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	$\pm 0.1\% \times \text{display value}$
Harmonic measurement	11Hz - 600Hz, with maximum 100 times harmonic content and total distortion
Energy measurement range	0 - 99,999MWh (Resolution: 1mWh/0.01mAh)
Energy measurement accuracy	$\pm (0.1\% \times \text{display value} + 0.1\% \times \text{range})$
Filter function	500Hz and 5.5kHz voltage and current line filters, as well as frequency filtering
Transformation ratio functionality	1 - 50,000
Data update cycle	100m/200m/500m/1/2/5/10 [s]
Control interface	Standard: RS-232, network interface; optional: RS-485, GPIB
Communication protocol	MODBUS protocol and SCPI protocol
Display	7-inch LCD touch screen
Appearance size	215 (W) $\times$ 133 (H) $\times$ 374 (D) mm
Opening size	215 (W) $\times$ 133 (H) mm
Foot height	15mm
Machine weight	Approximate 4kg

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

[Conditions]

- Temperature: $23 \pm 5^\circ\text{C}$, 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 accuracy formula, f represents frequency in kHz.
- When the data update rate is 100ms, add 0.03% of the reading to all accuracies.
- Due to the effect of temperature changes after zero adjustment or range change:
add $0.02\%/^\circ\text{C}$ to voltage DC accuracy and range, add $500\mu\text{A}/^\circ\text{C}$ to current DC accuracy, add $50\mu\text{V}/^\circ\text{C}$ to external sensor DC accuracy, and for power DC accuracy, add the product of the voltage and current effects.