

TA4300 Power Quality Calibrator



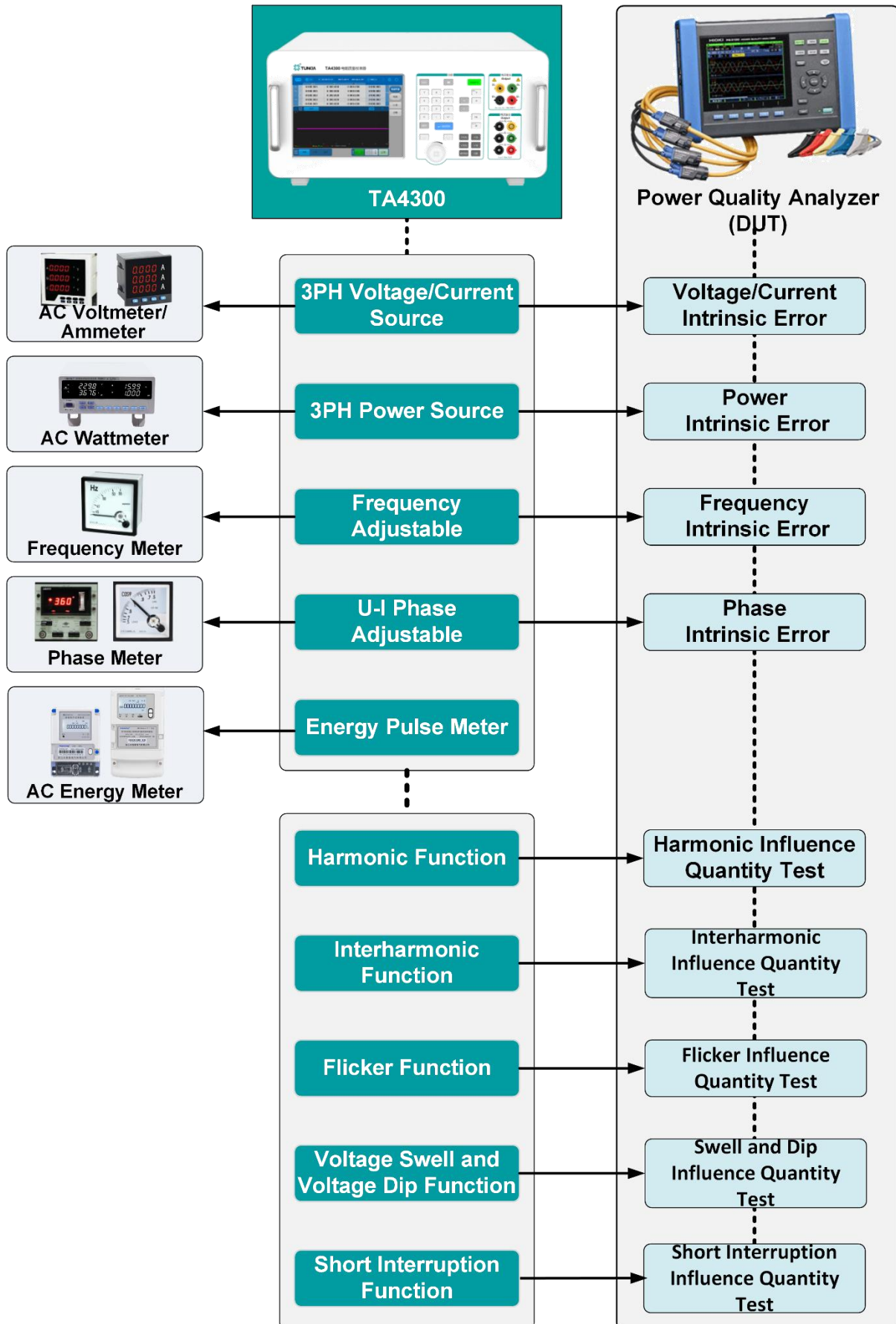
1. Summary

TA4300 is a 3PH power quality calibrator. It integrates voltage/current output function, harmonic function, AC power output function, AC energy test function. It can test voltage fluctuate, flicker, harmonic, interharmonic, voltage swell, voltage dip and 3PH imbalance for power quality analyzer.

2. Features

- 3PH voltage output: 1 V~528 V
- 3PH current output: 0.2 mA~22 A
- Frequency: 45 Hz~65 Hz (400 Hz as option)
- U-I phase: 0°~360°
- Voltage/Current accuracy class: 0.02
- Harmonic: 2nd~99st output
- Interharmonic: 0.1~99.9 times output
- Flicker, voltage swell, voltage dip and short interruption functions
- Electrical energy pulse input/output function
- LCD touch screen
- Testing software (Option)

3. Application



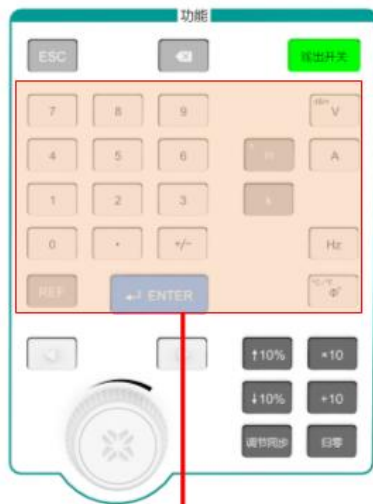
4. Characteristics

☆ Wide Output

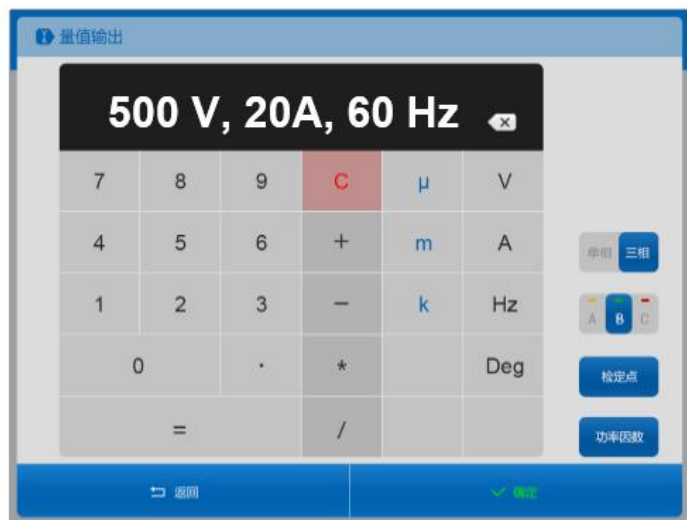
	0	1 μ	1 m	1	10	100	1k	10 k	100 k
ACV	1 V 528 V								
ACI	0.2 mA 22 A								
F	45 Hz 65 Hz 45 Hz 400 Hz(Option)								
Φ	360°								
P(cosΦ=1)	$I_{MIN} \times U_{MIN}$ $I_{MAX} \times U_{MAX}$								
Harmonic	2 nd 99 st								
Inerharmonic	0.1 times 99.9 times								

- It can meet most three-phase /single-phase power quality meters.

☆ Multiple Output Mode



Keypad



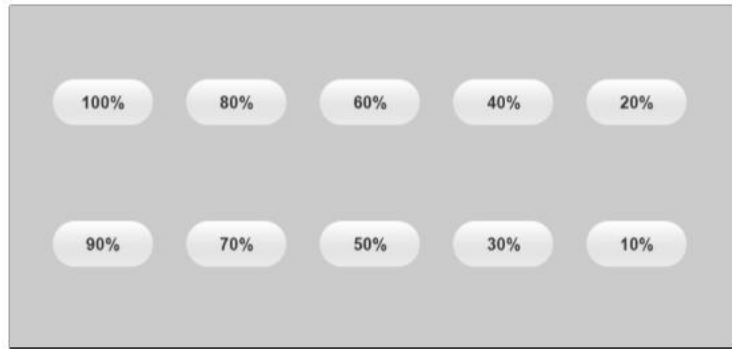
Touch Screen Output

- “Direct output” mode, User can set output value by physical key or touch screen.
- Three-phase unit adjustment or single phase adjustment.

☆ Multiple Output Mode



% Setting



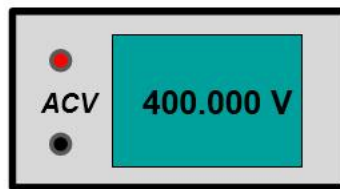
Touch Screen "Calibration Points"



Full Range



90% Range



80% Range

- Touch "Calibration point" of screen for "% setting".



Rotary Knob



- "Rotary Knob" mode, User can setting in clockwise direction or anticlockwise direction.

☆ Harmonics Function

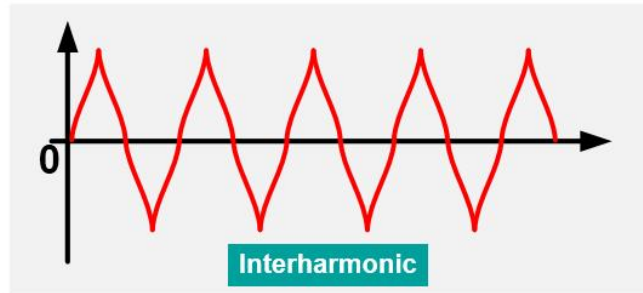


S/N	Function description
1	User can select test function for harmonic, interharmonic, flicker, voltage swell/dip, three-phase imbalance.
2	User can set 2 nd ~99 st harmonics output, and set amplitude or percentage.
3	Oscilloscope function, user can observe voltage and current waves.
4	Display frequency spectrum of harmonic by histogram.(fundament wave is 100%)

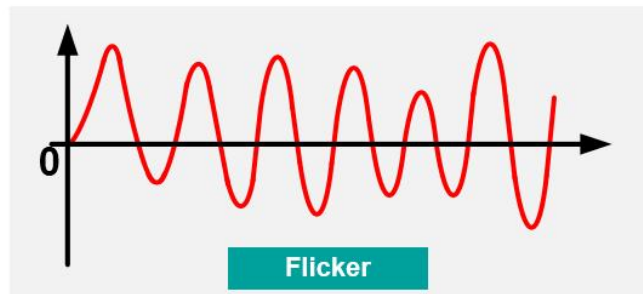
☆ Interharmonic / Flicker Function



(a) Interharmonic



(b) Flicker



S/N	Function declaration
1	Set up interharmonic number.
2	Set up amplitude of interharmonic and select voltage and current channel.
3	Set up flicker, select sine wave or square wave by click, and set up duty factor of square wave, frequentness, Pst.
4	Set up amplitude of flicker and select voltage channel.

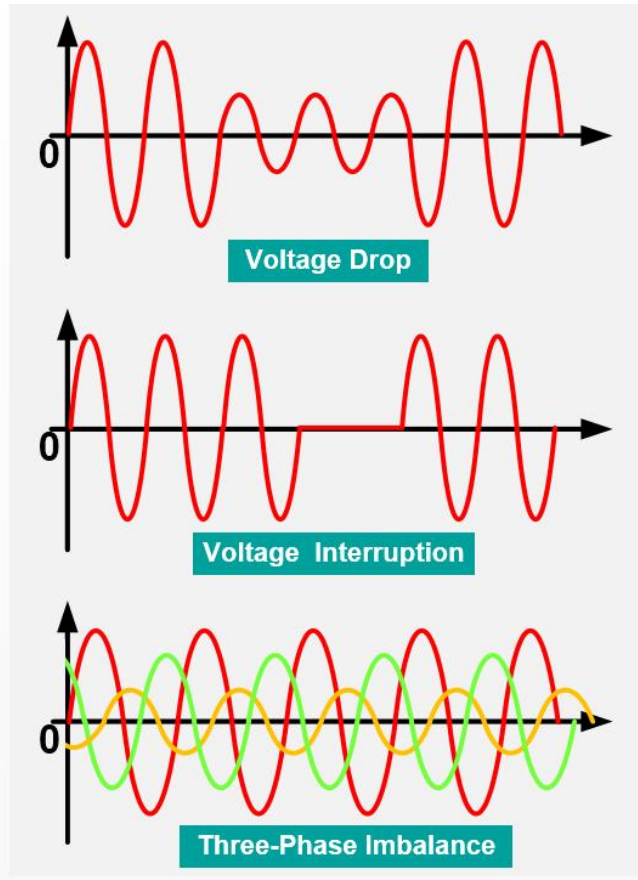
☆ Voltage Drop/ Interruption and Three-Phase Imbalance



(a) Voltage Drop/ Interruption



(b) Three-Phase Imbalance



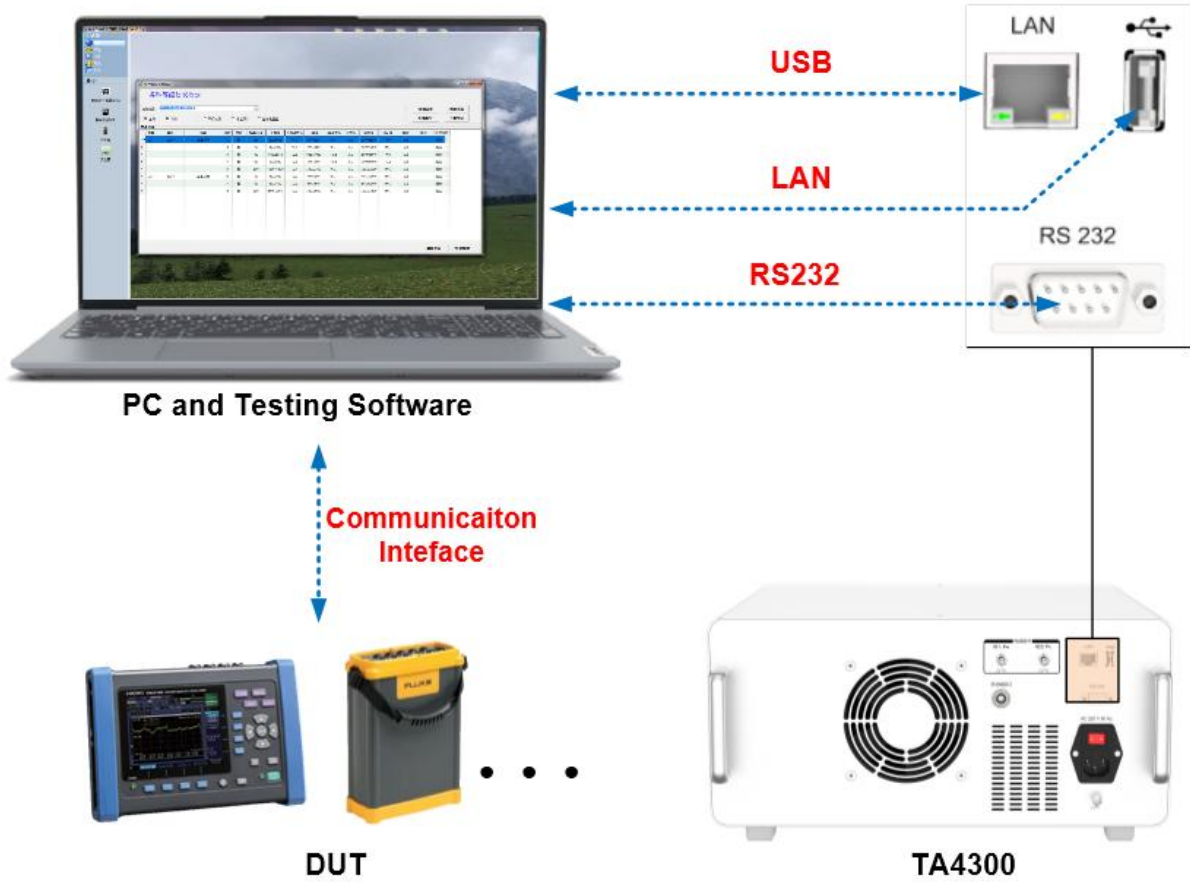
S/N	Function declaration
1	Set up duration time and drop circulation of voltage, set up duration time before drop and after drop, single drop or times by circle.
2	Set up amplitude of drop and select voltage channel.
3	Set up voltage/current of three-phase imbalance.
4	Set up three-phase imbalance.

☆ Electric Quantity Analysis



S/N	Function declaration
1	Multi-electric quantity display area for real-time display A/B/C phase multi-group electric quantity values.
2	Phasor diagram, display phasor diagram for voltage and current.
3	Trend chart, display trend of selector electric quantity.
4	Analysis Max value, Min value, P-P: Max- Min, Avg value and standard variance.

☆ Testing Software (Option)



- USB, LAN, RS232 communication interface, software customizable.

6. Specifications

6.1 Three-Phase Voltage / Current Output

Voltage Range	Resolution	Stability (%/min)	Accuracy \pm (ppm of reading + ppm of range) ^[1]	Max Burden (mA)
60 V	0.01 mV	0.005	120+80	240
120 V	0.1 mV	0.005	120+80	120
240 V	0.1 mV	0.005	120+80	60
480 V	0.1 mV	0.005	120+80	30

Note [1] : (ppm = parts per million) (e.g., 10ppm = 0.001%).

Current Range	Resolution	Stability (%/min)	Accuracy \pm (ppm of reading + ppm of range) ^[1]	Max Burden (V)
200 mA	0.1 μ A	0.005	120+80	50
1 A	1 μ A	0.005	120+80	20
5 A	1 μ A	0.005	120+80	6
20 A	10 μ A	0.005	120+80	1.5

- Output range: 1 V~528 V, 0.2 mA~22 A; manual/automatic range switch;
- Degree of distortion: < 0.1%, voltage / current < 0.02%;
- Voltage short circuit, current open-circuit and overload protection

6.2 Frequency / Phase

Frequency	Range: 45 Hz~65 Hz (400 Hz as option); Adjustment fineness: 0.001 Hz; Accuracy: \pm 0.01 Hz
Phase	Range: 0.000 0°~359.999 9°; Adjustment fineness: 0.001°; Accuracy: \pm 0.02°

6.3 Three-Phase Power Output

Type	Stability (%/min)	Accuracy (\pm %*FS) ^[2]
Active power $ \cos\phi \geq 0.5$	0.005	0.05
Reactive power $ \sin\phi \geq 0.5$	0.01	0.05
Apparent power	0.01	0.05
Power factor	0.01	0.05

Note [1] : FS= voltage range \times current range

- Power factor range: -1.000 000...0.000 000...1.000 000

6.4 AC Energy Testing

Type	Accuracy
Active energy	$\pm 0.05\%$ *reading
Reactive energy	$\pm 0.1\%$ * reading

- Energy pulse output: full range for 60 kHz
- Energy pulse input: max frequency is 200 kHz, pulse level: 3 V~24 V
- Constant setting of energy meter: 1...1000000imp./kwh or 1...1000000imp./ws



6.5 Harmonic / Interharmonic / Flicker / Voltage Swell or Dip

Harmonic	Voltage/current : 2 nd ~99 st output; Amplitude: 0~40%; Phase: 0~359.99°; Accuracy: $\pm 0.1\%$
Interharmonic	Voltage/current : 0.1~99.9 time output; Amplitude: 0~40%; Phase: 0~359.99°; Accuracy: $\pm 1\%$
Flicker	Flicker momentum range: 0~40 %; Frequency range: 0.1~200 Hz; Modulation mode: sine or square wave; Accuracy: $\pm 1\%$
Voltage Swell or Dip & Short Interruption	Output range: 0~120%*Range; time of swell/dip: 0~120s; Duration time: 1ms~300s

7. General Specifications

Power Supply	AC (220 ± 22) V, (50 ± 2) Hz
Temperature Performance	Working temperature: 0°C~45°C; Storage temperature: -20°C~70°C
Humidity Performance	Working humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: (20%~80%) R·H, non-condensing
Interface	USB、LAN、RS232

8. Ordering Information

TA4300 -  

Frequency	
Code	Note
65Hz	45 Hz ~ 65 Hz
400Hz	45 Hz ~ 400 Hz

e.g. : **TA4300-400Hz** note for frequency 45Hz ~ 400 Hz.