

GF3000

Multi-Positions Three Phase Energy Meter Test Bench

The GF3000 series stationary three phase energy meter test bench is a fully automatic system that enables simultaneous, multi-position calibration and verification of three-phase electric energy meters error. Full compatibility with IEC/EN 60736, excellent parameters, superior functionality and outstanding flexibility, It adopt the most advanced electronic measurement technique and modular concept combine the difference 0.02% three phase reference standards and power amplifier. GF3000 three phase meter test bench is applied in the metrological center of grid company energy metrology department of power supply company and energy management utilities, industrial enterprise and energy meter manufacturers.

Features

1. With Multi-channel server;
2. Operate automatically or manually;
3. 3×120A, 3×380V, accuracy 0.02% or 0.05%;
4. High resolution of voltage, current and power;
5. 3, 6, 12, 20, 24, 40, 48pcs meter positions optional;
6. Each meter position with error display in meter rack;
7. Large LCD display and simple interface for operation;
8. Every meter position have error calculation/monitor;



Functions

1. Timing error test;
2. Standard deviation, 24 hour variation test;
3. Calibration and verification of pulse constant;
4. Able to check the same type meters with different constants;
5. Supporting bar code input, which increase the efficiency of input;
6. Testing energy registers (dial test) and maximum demand indicator;
7. Forward and reverse active energy / forward and reverse reactive energy error test;
8. Able to display waveform of voltage and current able to set 2nd-51st harmonic of voltage and current, measure the waveform distortion and harmonic content, and display harmonic chart;
9. Creeping and starting test;
10. Equipped with RS232 communication port;
11. Influencing quantity test of voltage, frequency, harmonic;
12. Full automatic, semi automatic and manual operation available;
13. Able to print out all kinds of test reports with the standard forms;
14. Able to calibrate all kinds of electronic and inductive three phase kWh meter;
15. Able to perform automatic measurement like shunting, basic errors, standard deviation, and etc;
16. Able to test voltage, current, active/reactive/apparent power, phase, power factor, frequency, and etc;

9. Meeting standard ISO17025, IEC/EN 60736 and IR46;
10. High accuracy, 6-digit display the energy relative errors are no more than 0.05%(0. 1%)within the measuring range;
11. High stability of power source which is up to 0.01%/100s and low distortion which is no more than 0.3%;
12. Wide current measuring range from 1mA to 120A which can be automatically switched
13. Self-check and perfect protection function of overload, short voltage circuit and open current circuit;
14. Installing the ICT in each meter position to test three-phase meters with closed links between the current and voltage measuring circuits (I-P Links) (optional);
15. Equipped with three phase multifunction reference meter and program-controlled three phase power source which can be separately used and are convenient for testing;
16. With auto PC control verification software;

Parameters

Electrical parameters	
Accuracy	0.02%, 0.05%, 0.1%
Power Supply	AC 180-265V, or 3×220/380V±15%, frequency 50/60Hz.
AC Voltage Output	
Range(U1, U2, U3)	57.7V, 100V, 220V, 380V (max 480V)
Adjustment range	(0-120)%RG ⁽¹⁾
Adjustment fineness	0.01%RG, 0.1%RG, 1%RG, 10%RG as optional.
Stability	0.01%/120s
Distortion	0.3% (Non-capacitive load)
Output load	1500VA
Measuring accuracy	0.02%RG or 0.05% RG
AC Current Output	
Range(I1,I2,I3)	0.1A, 0.25A, 0.5A, 1A, 2.5A, 5A, 10A, 25A, 50A, 100A, 120A
Adjustment range	(0-120)%RG
Adjustment fineness	0.01%RG, 0.1%RG, 1%RG, 10%RG as optional.
Stability	<0.01%/120s
Distortion	≤0.3% (Non-capacitive load)
Output load	1500VA or 2000VA
Accuracy	0.02%RG or 0.05% RG
Power Output	
Active power output stability	<0.01%RG/120s
Reactive power output stability	<0.02%RG/120s
Active power measuring accuracy	0.02%RG or 0.05% RG
Reactive power measuring accuracy	0.1%RG

Electrical parameters - continued

Phase Output

Output adjustment range	0°-359.999°
Output adjustment fineness	10, 1, 0.1, 0.01 as optional.
Resolution	0.01°
Accuracy	0.02° or 0.05°

Power Factor

Adjustment range	-1 ~ 0 ~ 1
Resolution	0.0001
Measurement accuracy	0.0005

Frequency Output

Adjustment range	40Hz-70Hz
Output adjustment fineness	5Hz, 1Hz, 0.1Hz, 0.01Hz as optional.
Resolution	0.001Hz
Accuracy	0.002Hz

Voltage /Current/Harmonic Setting

Harmonic number	2-51times
Harmonic content	0-40%
Harmonic phase	0-359.99
Harmonic setting accuracy	(10%±0.1%)RD ⁽²⁾

Power Energy Measurement Error

Active power energy	0.05%RG or 0.02% RG
Reactive power energy	0.1%RG

Power Pulse Output

Power pulse type	active pulse, reactive pulse
Active power pulse output	5V, 10mA
Pulse output frequency	Max 50kHz

Power Pulse Input

Pulse constant set range	(1--599999999)/kwh
Energy pulse type	support active and reactive pulse, the highest frequency power pulse input is 200KHz.

Meter Position

Position	3, 6, 12, 20, 24, 40, 48pcs meter
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Standard

Standard	IEC 62053-21,22, 23; IEC /EN 60736; ANSI C12.20-2002; JJG 597-2005; JJG596-2012; JJG 1085-2013; JJF 68-2019; DL/T 826-2002; DL/T 1478-2015; DL/T 448-2016; IR46; EN 50470-1, EN 50470-2, EN-50470-3; IEC 61010;
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Electrical parameters - continued
Safety

Isolation protection	IEC 61010-1:2001
Measurement Category	300 V CAT III, 600 V CAT II
Degree of protection	IP20
Declaration of conformity	CE & CNAS certified

Mechanical parameters

Dimensions (mm)	Cabinet size: 800 * 600 * 1850mm (L * W * H). Bench size: 2400 * 760 * 1846mm (L * W * H).
Weight (kg)	About 235

Environmental conditions

Ambient temperature	0°C to +40°C
Relative humidity	35%-85%

(1) RG means range, the same as below;

(2) RD means the setted harmonic content, harmonic can be a single output, also multiple output.