GF3000-ANSI

Multi-Positions Three Phase Electricity Meter Test Bench

The GF3000-ANSI three phase electricity meter test bench is a fully automatic system that enables simultaneous, multi-position calibration and verification of three-phase electric energy meters accuracy. Full compatibility with IEC 60736 & ANSI meter, excellent parameters, superior functionality and outstanding flexibility, It adopt the most advanced electronic measurement technique and modular concept combine the difference three phase reference standards and power amplifier. GF3000-ANSI three phase electricity meter test equipment is applied in the measurement centre of grid company energy measurement department of power supply company and energy management utility, industrial enterprise and electricity energy meter manufacturers. It is strictly in accordance with IEC60736, IR46 and ANSI C12.20 standard, meeting ISO17025 laboratory standards!

Functions

1.Electricity meter accuracy verification

Basic error
Constant test
starting test
Creep test
Indication error
Daily timing error
Maximum demand error test
Impact test

2.Electricity meter function check

Electric energy metering function
Tariff and Time Period Function
Event record
Measurement and monitoring functions
Step by step electricity consumption
Display function
Freeze function

3.Electricity meter communication testing

Consistency check of communication protocol
Carrier Communication Performance Test

4.Electricity meter conformance testing

Error variation test
Error consistency test
Load current fluctuation test

5.Electricity meter Cost control test

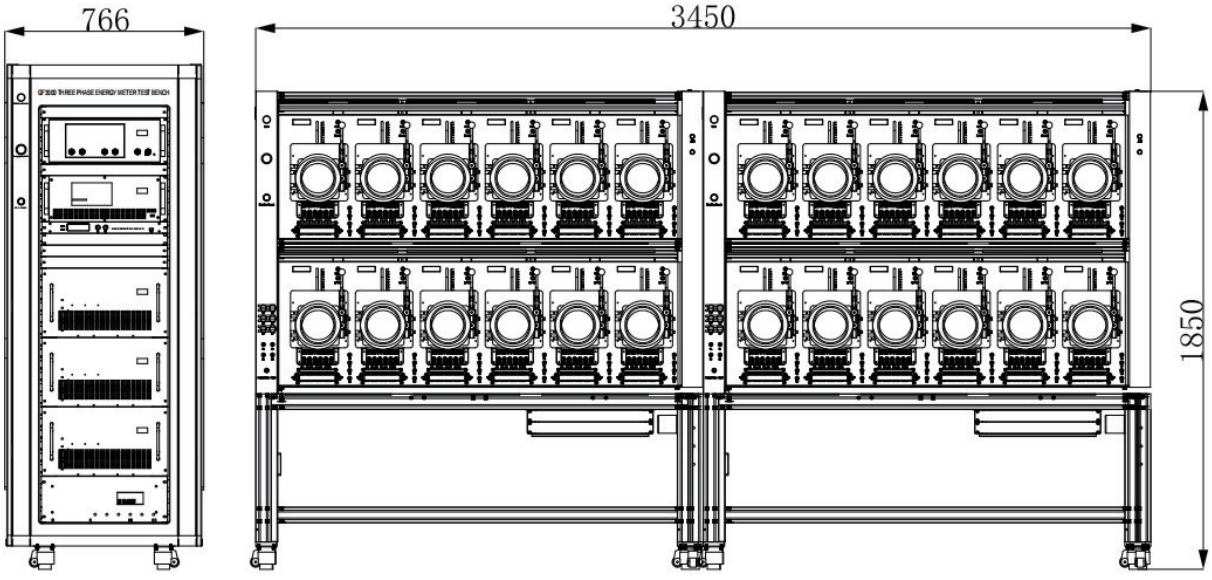
Cost control function test
Safety certification test
Parameter update test
Remote control test

Features

1. The device adopts a split type (cabinet+rack) structure, equipped with fixed universal wheels for easy movement.
2. The device adopts a ANSI socket meter holder, which can quickly connect voltage, current, and auxiliary terminals, reduce manual operation, and improve work efficiency.
3. The device adopts multi-channel server communication, and each meter has an independent RS-485 communication channel, making the communication of the electric energy meter stable, reliable, accurate, and fast.
4. The device is equipped with a Beidou time base source system, which supports functions such as satellite positioning output, high-precision timing output, and calculation of daily timing errors for electricity energy meters.
5. It can verify various electronic three-phase smart energy meters and three-phase electricity energy meters. Reactive energy meters that can verify various measurement principles (natural reactive power and artificial reactive power), including three-phase four wire true reactive power, three-phase three wire true reactive power, three element 90 ° artificial reactive power, two element 90 ° artificial reactive power, two element 60 ° artificial reactive power, etc
6. According to the requirements of national inspection regulations or electricity power industry standards, fully automatic verification can be carried out for inspection items such as creep, starting, basic error, standard deviation, and 24-hour variation. You can also customize the verification plan; You can also choose your own testing point for single point calibration.
7. It can measure the changes caused by factors such as voltage, frequency, harmonics, reverse phase sequence, and voltage imbalance.
8. It can simultaneously verify electric watt-hour meters of the same specifications, different constants, and different class.
9. Each tested watt-hour meter is equipped with a dedicated 6-digit display error calculator.
10. The device has a wide output and measurement range, and can calibrate various commonly used limit electric energy meters. All current and voltage limits are automatically switched (including 120A current). Large output power margin, capable of long-term stable operation under maximum load.
11. Automatically monitor the verification process through a computer, perform data rounding, determine verification conclusions, and save data. Can query, browse, and print verification certificates and inspection records.
12. Support: barcode input, error curve chart, user system, error upper and lower limit settings, multiple verification schemes, management permission settings, weekly inspection plan, etc.
13. Measurable parameters such as voltage, current, power, power factor, phase, frequency, etc.
14. Real time display of phasor diagrams and waveform diagrams of in-phase voltage and current
15. Harmonic impact test can be conducted, with harmonic order set within the range of 2-63 times, load harmonic amplitude set within the range of 0-40%, and harmonic phase set within the range of 0-360 °.
16. It can measure the stability of the output voltage, current, power, and total power of each phase

17. It can measure the maximum difference between three-phase voltage unbalance, three-phase current unbalance, and three-phase phase difference.
18. Equipped with a pulse input interface for the tested meter, capable of receiving pulse signals of various levels and amplitudes.
19. Standard energy pulse output, automatic setting of pulse constant, or manual setting.
20. It can measure the distortion of output voltage and current waveforms.
21. The device is equipped with an RS-485 communication port.
22. It has a breakpoint restart testing function, allowing the suspension of a test on a certain meter, and allowing the pause and continuation of the current test.
23. It has the function of Dial test (Register test).
24. The device has soft start stop function for voltage and current output, protection and alarm function for short circuit of voltage output terminal and open circuit of current output terminal, comprehensive protection for output power amplifier, and high reliability.
25. Software calibration, simple and easy to use, with stable performance.
26. With computer and multifunctional watt-hour meter test system software platform to work.

Dimension



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)	0.01A, 0.025A, 0.05A, 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	2400VA
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 or 0.1% RG
Reactive power measuring accuracy	0.1%RG
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	2-63times
Harmonic content	0-40%
Harmonic phase	0-359.99
Harmonic setting accuracy	(10%±0.1%)RD[2]

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ENERGY METER TEST EQUIPMENT

Electrical parameters - continued	
Three Phsase Reference Meter	
AC Voltage Measurement	
Range(U1, U2, U3)	60V, 120V, 240V, 480V (max 576V)
Measurement range	(0-120)%RG(1)
Resolution	0.01%RG
Accuracy	0.02%RD or 0.05% RD
AC Current Measurement	
Range(I1,I2,I3)	0.001A, 0.002A, 0.005A, 0.01A, 0.02A, 0.05A, 0.1A, 0.2A, 0.5A, 1A, 2A, 5A, 10A, 20A, 50A, 100A, 120A
Measurement range	(0-120)%RG
Resolution	0.01%RG
Accuracy	0.02%RD or 0.05% RD
Phase Measurement	
Range	0°-359.9999°
Resolution	0.0001°
Accuracy	0.02° or 0.05°
Power Factor Measurement	
Range	-1.0000 ~ 0.0000 ~ 1.0000
Resolution	0.0001
Accuracy	0. 0005
Frequency Measurement	
Range	40Hz-70Hz
Resolution	0.001Hz
Accuracy	0.002Hz
Voltage /Current/Harmonic Measurement	
Harmonic number	2-63times
Harmonic content	0-40%
Accuracy	0.3%RD
Power Energy Measurement Error	
Active power energy	0.02%RG or 0.05% RG
Reactive power energy	0.1%RG
Energy Pulse Output	
Energy pulse type	active pulse, reactive pulse, apparent pulse
Pulse constant set range	(1--1000000000000)/kwh
Energy pulse output	5V,12V
Pulse output frequency	≤50kHz
Energy Pulse Input	
Energy pulse type	active pulse, reactive pulse, apparent pulse
Pulse constant set range	(1--100000000000)/kwh
Energy pulse input	5V,12V
Pulse input frequency	≤50kHz
Meter Position	
Position	3, 6, 12, 16, 20, 24, 40pcs meter
ANSI Meter Type	
Meter form	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 12S, 13S, 14S, 15S, 16S and 17S etc.

Electrical parameters - continued	
Standard	
Standard	IEC 62053-21,22, 23; IEC 60736; IR46; 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; EN 50470-1, EN 50470-2, EN-50470-3; IEC 61010;
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: 766 * 870 * 1956mm (L * W * H). Bench size: 3450 * 750 * 1850mm (L * W * H).
Weight (kg)	About 850
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.