

GF101

Program-Controlled Single Phase Phantom Load Power Source

The GF101 single phase phantom load power source for testing energy meter is equipped with RS232 port as standard communication interface to control external devices remotely. In the power calibration mode, the GF101 programmable phantom load power source can be used as a source to calibrate single-phase AC watt meters, power analyzers, and energy meters. In this mode, the output voltage can be set up from 0 to 600V, the output current from 0 to 120A, and the power factor from -1.00000 to +1.00000 lead/lag in the frequency band from 40Hz to 70Hz. Power factor is an important element when users judge the efficiency of a device. It is suitable for power department, metrological department, quality control department, research units, institution of higher learning, electric energy meter, power distribution terminals, power supply management, load control, power quality, reactive power compensation device and production of the enterprise and so on. It can be as high accuracy 0.02% single phase voltage source, current source and power source.

Application

1. Universities;
2. Energy meter R & D;
3. Electrical testing center;
4. AMI Research institutes;
5. Transducer manufacturers;
6. Panel meter manufacturers;
7. Power meter manufacturers;
8. Digital meter manufacturers;
9. Pointer meter manufacturers;
10. Railway electrical department;
11. ISO17025 Electrical laboratory;
12. Measurement and control device factory;
13. Electricity power bureau & power company;
14. Power engineering commissioning company;
15. Manufacturer of reactive power compensation device;
16. Electrical Department of industrial and mining enterprises;



Features

1. Setting up and taking the load regulation of voltage, current, phase and frequency of the power factor;
2. Amplitude phase 2nd-63rd harmonics, and it can be added to the fundamental wave in every harmonic output;
3. A wide range output of voltage and current, big power, high stability, small waveform distortion degree;
4. Strong load ability, taking capacitive load, sensibility load, resistive load or composite load, load regulation is higher than 0.01%;

5. Applying the 32bit MPU + DSP + FPGA, powerful flexible;
6. High precision 0.02%, as electrical laboratory standard;
7. Output range widely: 0-120A, 0-600V;
8. Using hardware PID, fast response, the change of load will not cause volatility output;
9. Power frequency waves reach up to 50000 points every cycle wave, signal output without filter, precise waveform output, precise harmonic output, small harmonic distortion degree
10. Switching range automatically;
11. Using software calibration, easy to operate, stable and reliable;
12. Big screen, 6 inch touch TFT LCD display, Chinese or English menu, easy to operate;
13. Perfect over-current, over-voltage, over-heat, shorts-and-opens, overload protection, automatic failure detection;
14. With RS232 interface, programmable controlled by computer;
15. Load setting PF= 1.0, 0.5C, 0.8C, 0.5L, 0.8;
16. Phase shift from 0°-359.999°;
17. Support user's secondary software development;

Parameters

Electrical parameters	
Accuracy class	0.02%, 0.05%, 0.1%
Power supply	Single phase AC 85-265V, 50/60 Hz
AC Voltage output	
Range	57.7V / 100 V / 220V / 380V, Switch automatically (max 500V or
Adjustment resolution	0.01%, 0.1%, 1%, 10%,
Accuracy	0.02% RG, 0.05% RG
Stability	Better than 0.01% RG/1min
Distortion degree	Better than 0.1% (not capacitive load)
Load capacity	25VA or 50VA
Full load regulation rate	Less than 0.01% RG
Full load regulation time	Less than 1ms
Temperature drift	8 PPM/°C
Long-term stability	60 PPM/year
AC Current output	
Range	0.1A / 0.25A / 0.5A / 1A / 5A / 10A / 20A / 50A / 100A / 200A, Switch automatically(max 120A or 240A)
Adjustment resolution	0.01%, 0.1%, 1%, 10%,
Accuracy	0.02% RG, 0.05% RG
Stability	Better than 0.01% RG/1min
Distortion degree	Better than 0.1% (not capacitive load)
Load capacity	50VA, 100VA, 200VA, 500VA
Full load regulation rate	Less than 0.01% RG
Full load regulation time	Less than 1mS
Temperature drift	8 PPM/°C
Long-term stability	60 PPM/year

Electrical parameters - continued
Power output

Active power accuracy	0.02%, 0.05%, 0.1%
Reactive power accuracy	0.1%
Stability	Better than 0.01% RG/1min

Phase angle

Range	0.000°-359.999°
Output adjustment fineness	10°, 1°, 0.1°, 0.01° as optional.
Resolution	0.001°
Accuracy	0.02°, 0.05°

Power factor

Adjusting range	-1 ~ 0 ~ +1
Resolution	0.0001
Accuracy	0.0005

Frequency

Range	40.000-70.000 Hz
Output adjustment fineness	5Hz, 1Hz, 0.1Hz, 0.01Hz as optional.
Resolution	0.001 Hz
Accuracy	0.002Hz
Temperature drift	0.5 PPM/°C
Long-term stability	4 PPM/year

Harmonic

Harmonic times	2nd-63rd
Adjustment resolution	0.1% (Compared with fundamental wave)

Harmonic content (Compared with fundamental wave)

Voltage	≤40%
Current	≤40%
Harmonics phase	0°-360.00°

Functions

Communication Port	RS232
Programmable controlled	Yes
Harmonics	Yes
Key	20pcs
LCD	6 inch TFT color touch display
PC control software	Optional

Standard

Standard	IEC 62053-21,22, 23; IEC 60736; ANSI C12.20-2002; JIG 597-2005; JIG596-2012; JIG 1085-2013; JJF 68-2019; DL/T 826-2002; DL/T 1478-2015; DL/T 448-2016;JIG 51-1999; DL/T 2213.1-2021; GJB J 5857-2006; JIG6-2011; JIG70-2015;
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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 (WxDxH) (mm)	420x320x155
Weight (kg)	12

Environmental conditions

Operating temperature	0°C to 50°C
Storage conditions	-30°C to 60°C
Relative humidity	≤85%

Selection Guide

NO.	Accuracy	Voltage range	Current Range	Weight
1011201	0.1%	0-500V	0-120A	12KG
10112005	0.05%	0-500V	0-120A	12KG
101201	0.1%	0-500V	0-20A	10KG
1012005	0.05%	0-500V	0-20A	10KG
101121	0.1%	0-500V	0-12A	8KG
1011205	0.05%	0-500V	0-12A	8KG
101T1201	0.1%	0-1000V	0-120A	13KG
101T12005	0.05%	0-1000V	0-120A	13KG
101D2001	0.1%	0-600V	0-200A	20KG
101D20005	0.05%	0-600V	0-200A	20KG