

GF302D-ECT

Portable Three Phase Energy Meter Test Equipment

The GF302D-ECT portable meter test equipment is used for grid corporation of measurement and energy test center, management department of power supply bureau, national energy measurement of testing authorities, and also used to test each kind of single/three phase kWh meter of industries and mining enterprises as well as electric meter manufacturers. Meanwhile, the meter test equipment also can be used as one high precision standard power source(up to 500V/120A/1.2V or 500V/20A/1.2V) and built-in three-phase electronic reference standard of accuracy class 0.02% or 0.05%, Portable design, used in the laboratory or on site to auto check small signal electronic energy meter error.

Features

1. Weight light 22Kg;
2. 7 inch TFT touch screen;
3. Accuracy class 0.02 or 0.05;
4. Test by automatic or manual;
5. Start testing and creep testing ;
6. 0-120A/0-1.2V/0-500V/40-70Hz;
7. Testing point 0.5L,0.8L,1.0,0.8C,0.5C;
8. Recorder 500 sets energy meter data;
9. Overload, short circuit, open circuit protection;
10. Display all electrical parameters on one screen;
11. Reference standard and current source integrated ;
12. Voltage test point 10%,20%,50%,80%,100%,110%,120%;
13. Current test point 5%,10%,20%,30%,50%,70%,100%,120%;



Functions

1. Testing all kinds of energy meter in 1P2W, 1P3W, 3P3W, 3P4W;
2. Testing small signal electronic energy meter;
3. Measuring mechanical meter and electric meter;
4. Power and energy measurements for active, reactive and apparent power;
5. Measuring frequency, phase shift and power factor;
6. Harmonic spectrum analysis for voltage and current up to the 63rd order;
7. Measuring the distortion factor;
8. Vector diagram display and phase sequence indication on integrated colored screen;

9. Energy dosing with built-in current source;
10. User friendly menu guided operation;
11. Energy meter accuracy test;
12. Register test;
13. No-Load Test;
14. Repeatability of error test;
15. Harmonics test;
16. Three phase ballance test and Three phase unballance test;
17. Especially configured USB stick for storage of customer data;
18. Easy verification and analysis of meter installations;
19. Automatic operation without need of an external PC;

Parameters

Electrical parameters	
Accuracy	0.02%, 0.05%, 0.1%
Power Supply	One Phase AC 100-265V, frequency 50/60Hz.
AC Voltage Output	
Range(U1,U2,U3)	57.7V, 100V, 220V, 380V; Max 500V or 69.3V, 120V, 240V, 480V(optional); Max 600V
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	each phase 25VA, 50VA, 100VA
Measuring accuracy	0.05%RG or 0.02%RG
AC Current Output	
Range(I1,I2,I3)	200mA, 1A, 5A, 20A, 100A; Max 120A 0.1V, 1V; 0-1.2V
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	50VA or 100VA ; 5mA
Accuracy	0.05%RG or 0.02%RG
Power Output	
Active power output stability	<0.01%RG/120s
Reactive power output stability	<0.02%RG/120s
Active power measuring accuracy	0.05%RG or 0.02%RG
Reactive power measuring accuracy	0.1%RG
Apparent power measuring accuracy	0.05%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 or 2-63times
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
Reactive power energy	0.1%RG

Power Pulse Output

Power pulse type	active pulse, reactive pulse
Active power pulse output	5V, 10mA

Power Pulse Input

Energy pulse type	support active and reactive pulse, the highest frequency power pulse input is 180K.
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Communication Port

Communication Port	RS232
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Standard

Standard	IEC 62053-21,22, 23; IEC 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
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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 certified

Mechanical parameters

Dimensions (W×D×H) (mm)	500x600x175
Weight (kg)	22

Environmental conditions

Ambient temperature	-10°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.

Selection guide

NO.	Accuracy	Voltage range	Current Range	Weight
302D12001	0.1%	0-600V	0-120A/0-1.2V	22KG
302D120005	0.05%	0-600V	0-120A/0-1.2V	22KG
302D6001	0.1%	0-600V	0-60A/0-1.2V	21KG
302D60005	0.05%	0-600V	0-60A/0-1.2V	21KG
302D2401	0.1%	0-600V	0-24A/0-1.2V	16KG
302D24005	0.05%	0-600V	0-24A/0-1.2V	16KG
302D1201	0.1%	0-500V	0-12A/0-1.2V	15KG
302D12005	0.05%	0-500V	0-12A/0-1.2V	15KG
302D601	0.1%	0-380V	0-6A/0-1.2V	12KG
302D6005	0.05%	0-380V	0-6A/0-1.2V	12KG

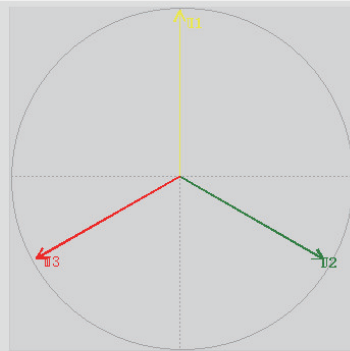
Packing List

Item	Name	QTY
1	GF302D machine	1PC
2	Scanning head	1PC
3	Energy pulse cable(input)	1PC
4	Energy pulse cable(output)	1PC
5	Voltage test cable	4PCS
6	Current test cable 100A (Optional)	6PCS
7	Current test cable 20A	6PCS
8	RS232 communication cable	1PC
9	Operation Manual	1PC
10	Factory test certificate	1PC
11	Portable box	1PC
12	PC automatic testing software(Optional)	1PC
13	Hanging energy meter rack(Optional)	1PC

PC automatic testing software(Optional)

GFUVE THREE PHASE METER TEST SYSTEM

		L1	L2	L3	Σ
Home	U (V)	100.376	100.442	99.9449	F (Hz)
	I (A)	1.00146	1.00392	0.99744	50.0031
Adjust	Φ (°)	0.17132	0.19683	0.19281	
	P (W)	100.522	100.836	99.6888	301.047
Harmonic	Q (VAR)	0.30249	0.34498	0.33435	0.98184
	S (VA)	100.523	100.836	99.6895	301.049
Meter	PF	0.99999	0.99999	0.99999	0.99999



☒ L1	☒ L2	☒ L3	☒ 3P4W ☐ 3P3W ☐ 1P2W ☐ 1P3W								
Query	U(V):	100	Set U	10	30	57.7	63.5	80	100	110	115
				176	220	242	264	304	380	418	456
Serial	I(A):	1	Set I	0.001	0.01	0.02	0.1	0.2	0.5	1	1.2
				1.5	3	5	6	10	15	20	24
	Φ(°):	0	Set Φ	30	36.87	60	90	180	270	300	323.1
				330	--	--	--	--	--	--	--
	F(Hz):	50	Set F	40	45	50	55	60	65	70	--

UI U1 U2 U3 I1 I2 I3

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U1 (V) :	U2 (V) :	U3 (V) :	Φ _a (°) :	Φ _b (°) :	Φ _c (°) :
I1 (A) :	I2 (A) :	I3 (A) :	Σ P (W) :	Σ Q (Var) :	Σ S (VA) :

[Basic Parameters](#) |
 [Basic Error](#) |
 [Test of Starting](#) |
 [Test of no-load](#) |
 [Energy Test](#) |
 [Standard Deviation](#) |
 [Test Plan](#)

Plan

☒ Electronic

☐ Electromechanical

Electronic

Test Point

Imax

0.5Imax

Ib

0.5Ib

0.2Ib

0.1Ib

0.1Ib

☐ Imax ☒ Ib

0.1

Specific program settings(Electronic)

☒ DP
 ☐ RP
 ☐ DQ
 ☐ RQ

Select the [Balance] Test Point

PF\I	Imax	0.5Imax	Ib	0.5Ib	0.2Ib	0.1Ib	0.05Ib
1.0							
0.5L							
0.8C							
0.5C							
0.25L							
0.25C							
0.8L							

Select [Unbalanced] Test Points

PF\I	Imax	0.5Imax	Ib	0.5Ib	0.2Ib	0.1Ib	0.05Ib
1.0							
0.5L							
0.8C							
0.5C							
0.25L							
0.25C							
0.8L							