GF302D-ECT

Portable Small Signal Electronic Energy Meter Test Equipment

The GF302D-ECT portable small signal energy 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 600V/120A/1.2V or 600V/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 accuracy. This test equipment offers high functionality combined with an excellent menu guided operation via built-in keyboards and colored 7 inch touch LCD-display. Voltage & current source harmonics output from 2 to 63 times. This model portable small signal meter test equipment can be programmable by PC, automatic generation of energy meter error test report.

Functions

1. Register test.
2. No-Load Test.
3. Harmonics test.
4. Repeatability of error test.
5. Energy meter accuracy test.
6. Measuring the distortion factor.
7. User friendly menu guided operation.
8. Energy dosing with built-in current source.
9. Testing small signal electronic energy meter.
10. Measuring mechanical meter and electric meter.
11. Easy verification and analysis of meter installations.
12. Measuring frequency, phase shift and power factor.
13. Automatic operation without need of an external PC.
14. Three phase ballance test and Three phase unballance test.
15. Especially configured USB stick for storage of customer data.
16. Testing all kinds of energy meter in 1P2W, 1P3W, 3P3W, 3P4W.
17. Harmonic spectrum analysis for voltage and current up to 63 times.
18. Power and energy measurements for active, reactive and apparent power.
19. Vector diagram display and phase sequence indication on integrated colored screen.

Features

1. Weight light 22Kg.
2. 7 inch TFT touch screen.
3. Test by automatic or manual.
4. Start testing and creep testing .
5. Harmonic output up to 63 times.
6. Accuracy class 0.02 or 0.05 or 0.1.
7. 3×0-120A/0-1.2V/0-600V/40-70Hz.
8. Testing point 0.5L,0.8L,1.0,0.8C,0.5C.
9. Recorder 500 sets energy meter data.
10. Overload, short circuit, open circuit protection.
11. Display all electrical parameters on one screen.
12. Reference standard and current source integrated .
13. Voltage test point 10%,20%,50%,80%,100%,110%,120%.
14. Current test point 5%,10%,20%,30%,50%,70%,100%,120%.

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 or 1V, 5V, 10V; 0-10V small signal optional
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
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 small signal optional
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	2-51 times or 2-63 times
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.
Communication Port	
Communication Port	RS232, USB2.0, RJ45
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; OIML R46;
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.

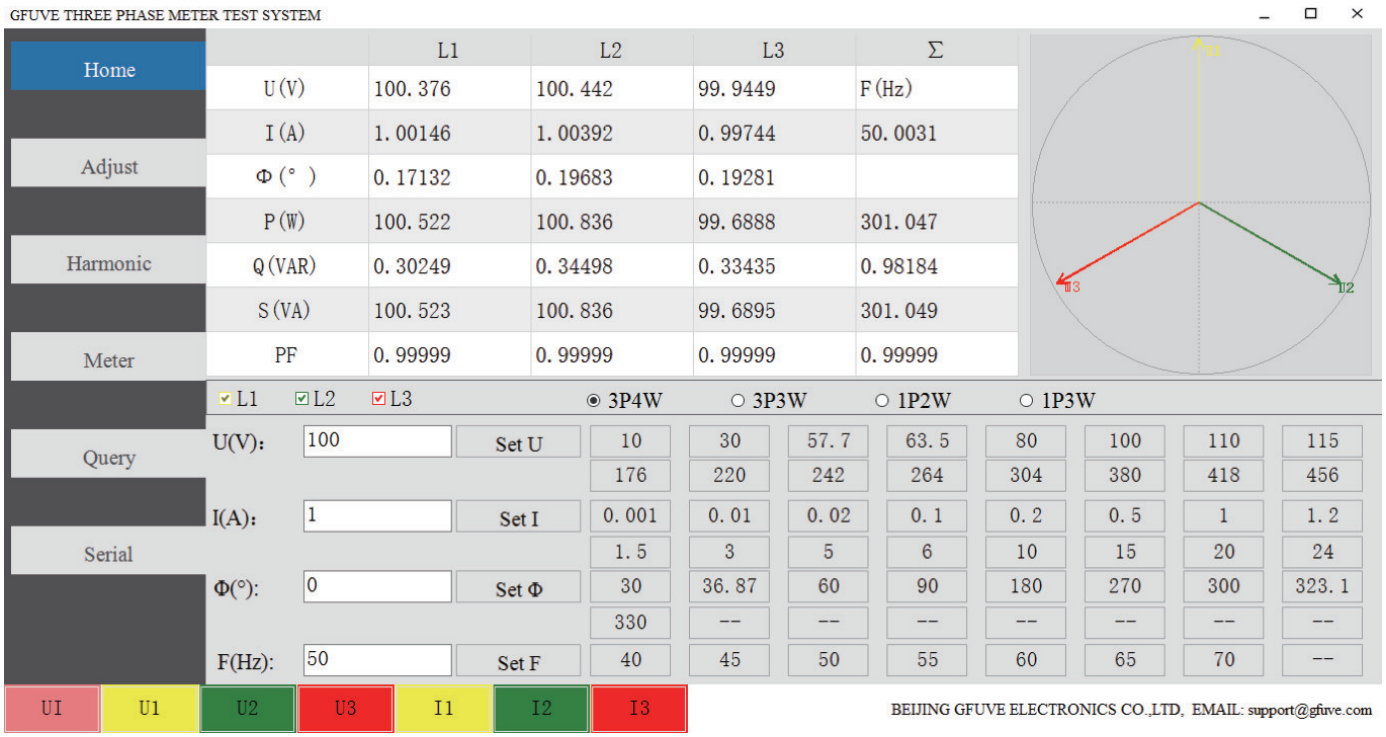
Model selection

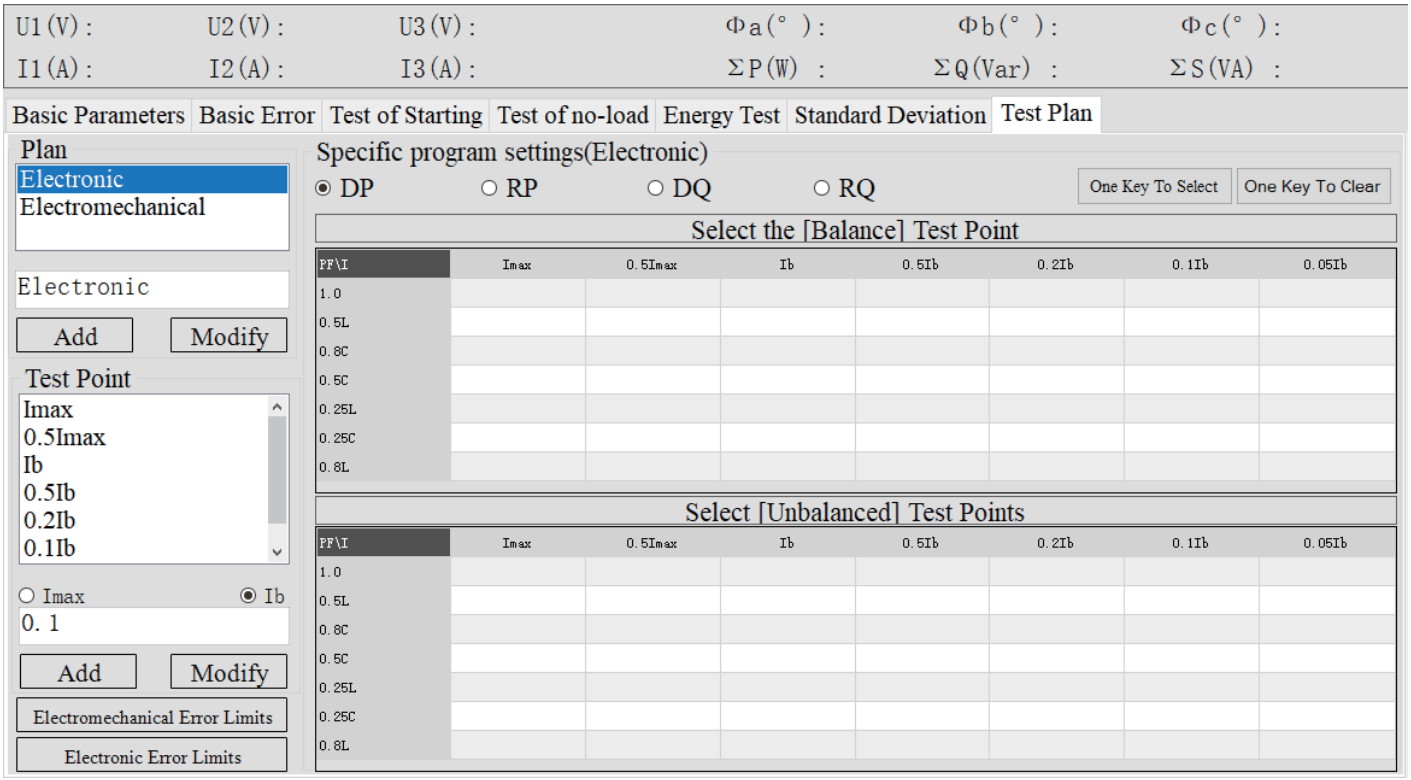
NO.	Accuracy	Voltage range	Current Range	Weight
302D12001	0.1%	0-600V	0-120A/0-1.2V	22KG
302D120005	0.05%	0-600V	0-120A/0-1.2V	22KG
302D120002	0.02%	0-600V	0-120A/0-1.2V	22KG
302D6001	0.1%	0-600V	0-60A/0-1.2V	21KG
302D60005	0.05%	0-600V	0-60A/0-1.2V	21KG
302D60002	0.02%	0-600V	0-60A/0-1.2V	21KG
302D2401	0.1%	0-600V	0-24A/0-1.2V	16KG
302D24005	0.05%	0-600V	0-24A/0-1.2V	16KG
302D24002	0.02%	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
302D12002	0.02%	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
302D6002	0.02%	0-380V	0-6A/0-1.2V	12KG

Packing List

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

PC automatic testing software(Optional)




U1(V):
U2(V):
U3(V):
Φa(°):
Φb(°):
Φc(°):
I1(A):
I2(A):
I3(A):
ΣP(W):
ΣQ(Var):
ΣS(VA):
Basic Parameters
Basic Error
Test of Starting
Test of no-load
Energy Test
Standard Deviation
Test Plan
Plan
Electronic
Electromechanical
Electronic
Add
Modify
Test Point
Imax
0.5Imax
Ib
0.5Ib
0.2Ib
0.1Ib
Imax
Ib
0. 1
Add
Modify
Electromechanical Error Limits
Electronic Error Limits
Specific program settings(Electronic)
DP
RP
DQ
RQ
One Key To Select
One Key To Clear
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