

GF313

Economical Handheld Three Phase Electricity Meter Field Tester

The model GF313 handheld three phase electricity meter field tester is a economical 0.2% AC energy meter accuracy testing device, mainly used to test three phase and single phase electricity energy meter error on site or integrated metering device error(CT+energy meter), measure all various of AC electrical parameters - U, I, P, Q, S, PF, F and CT ratio & phase error etc. And then it can check whether the wiring of the electricity meter is correct. GF313 electronic meter tester is an ideal electrical test tool for the metrological service of electricity power utilities. It has been widely used in more than 80 countries around the world.

Features

1. Testing power meter error in field;
2. Measure frequency of power line;
3. Measure harmonics and harmonics contents.
4. Testing comprehensive measuring device error;
5. Measure I(current) of three phase or single phase;
6. Measure U(voltage) of three phase or single phase;
7. Measure active power of three phase or single phase;
8. Measure power factor of three phase or single phase;
9. Measure reactive power of three phase or single phase;
10. Testing current transformer ratio and phase error on site;
11. Measure apparent power of three phase or single phase;
12. Testing all kinds of mechanical and electronic energy meter error;
13. Measure phase angle between U & I, U1 & U2 & U3, I1 & I2 & I3;
14. Testing three phase, single phase, and active or reactive meter error;



Functions

1. Handheld design;
2. Display vector diagram;
3. Measure CT variable ratio;
4. Display waveform of U and I;
5. Industrial handheld designed;
6. Measure 2-64th harmonic of U, I;
7. Store and display measured data;
8. High resolution 6 inch TFT color LCD;
9. High precision measurement, min current 1mA;
10. Analyze and display content of harmonic of U and I;
11. Voltage and current synchronous sampling technology;
12. Measure the ratio or lag-angle of low-voltage transformer;
13. With PC management software, download excel test report file;
14. Optional 5A, 20A, 100A, 200A, 500A, 1000A, 2000A, 3000A clamp on cts;
15. Adopt 32 bit ARM processor, multi-channel 24 bit precision A/D convertor;
16. With various type current clamps, wide range of measurement and high precision;
17. Low consumption circuit design, high energy Li batter supply, intellectual power management software, which make the instrument can continuously work up to 10 hours.

Parameters

Electrical parameters	
Accuracy class	0.2%, 0.5%
Display	6" TFT (640×480)
Power supply	220V±10%, 50/60Hz Li-polymer battery (size (mm): 110x51x16, nominal output voltage: 7.2V, capacity: 5000mAh) Power line supply (U1, UN), 85V-265V 50/60Hz
Communication port	RS232/USB port
Test voltage(U1, U2, U3, UN)	
Range	Phase to Netural 0-600V (Phase to Phase 0-830V)
Error	±0.05% (30V-600V) ±0.1% (0.01V-30V)
Voltage measurement temperature drift	< 8 x 10 E-6/K
Voltage measurement relative humidity drift	< 8 x 10 E-6/RH
Voltage measurement stability	< 50 x10 E-6
Voltage measurement long term stability	< 80 x 10 E-6/Year
Harmonic	2 nd -64 st
Test current(Clamp on CT - I1, I2, I3)	
Range	1mA-120A; 0-200A; 0-500A; 0-1000A; 0-2000A; 0-3000A
Standard Clamp CT	Model: P18 Test range:1mA-120A or 10mA-200A Accuracy:0.1% Ratio:1000:1 Internal diameter:18mm External diameter:38mm Lead cable:2.5m
Clamp on CT Optional	100A, 200A, 500A, 1000A, 2000A, 3000A
Three phase color label	L1=Red,L2=Yellow,L3=Blue
Error	±0.2% (10mA-120A)
Current measurement temperature drift	< 8 x 10 E-6/K @ 10mA-120A
Current measurement relative humidity drift	< 8 x 10 E-6/RH@ 10mA-120A
Current measurement stability	< 50 x10 E-6
Current measurement long term stability	< 80 x 10 E-6/Year
Harmonic	2 nd -64 st
Power & Energy measure error	
Active power	±0.2% (0.01A-120A)
Reactive power	±0.5% (0.01A-120A)

Electrical parameters - continued

Energy measure error

Active energy	$\pm 0.2\%$ (0.01A-120A)
Reactive energy	$\pm 0.5\%$ (0.01A-120A)
Power/energy measurement temperature drift	$< 15 \times 10^{-6}/K$
Power/energy measurement relative humidity drift	$< 12 \times 10^{-6}/RH@ 10mA-120A$
Power/energy measurement stability	$< 100 \times 10^{-6}$
Power/energy measurement long term stability	$< 160 \times 10^{-6}/Year$
Error display	5 digits with minimum three decimal places XX.XXX%

Phase angle

Range	$0^{\circ}-360^{\circ}$
Resolution	0.01°
Error	$\pm 0.1^{\circ}$

Frequency

Range	40-70Hz
Resolution	0.001Hz
Error	0.002Hz

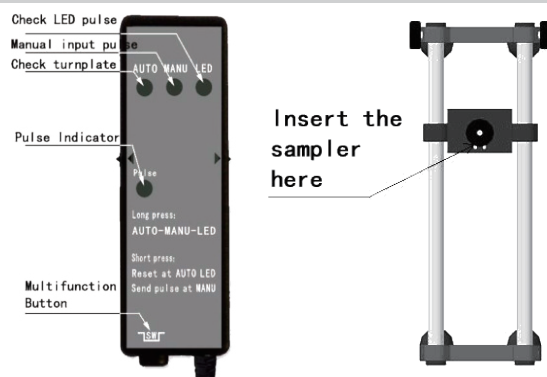
Pulse input

Input channel	2
Input level	5-24V
Input frequency	Max. 2MHz

Pulse output

Energy constant	180000imp/kWh, 1800imp/kWh, 180imp/kWh
Pulse ratio	1:1
Output level	5V
Pulse frequency	Standard 400Hz-2.5KHz, customized max 10KHz

Scanning head



The sampler is equipped with a bracket which can clip/install on the tested electronic and electromechanical meters, and the sampler can insert to the 'orifice/slot' in the center of the bracket.

There are 3 status LED indicator:

[AUTO] – scan the turn-plate of the energy meter

[MANU] – Manual input pulse

[LED] – Receive the LED energy pulse

Function

Sensitivity can be intelligently adjusted according to ambient light intensity to ensure accuracy measurement.

Electrical parameters - continued

Function

Vector diagram	Yes
Waveform	Yes
Energy resgister test	Yes
CT ratio test	Yes
CT PT programmable	Yes
Communication with PC	Yes
Overload protection	Yes

Cable and Accessories

Test Cable	Voltage test cable 1SET Cable Length:2m (R,Y,B,Black) Current test calbe 1SET Cable Length:2m (R,Y,B,Black)
Plug	Pin type 1SET (4black,2Red,2Yellow,2Green) 'U' type 1SET (4black,2Red,2Yellow,2Green) 'Ω' type 1SET (4black,2Red,2Yellow,2Green) Crocodile type 1SET (1Black,1Red,1Yellow,1Green)
Accessories portable box	Yes

Mechanical parameters

Instrument dimensions (W×H×D) (mm)	245×162×60
Instrument Weight (kg)	1.6
Carry case dimensions (W×H×D) (mm)	450×320×185
Carry case (kg)	8.5

Environmental conditions

Ambient temperature	-10°C to 55°C
Relative humidity	15%-95%
Environmental protection level	IP54

Standard

Isolation protection	IEC 61010-1:2001
Energy measurement	IEC/EN 60736
Reference standard	IEC 62052-11 IEC62053-21 IEC62053-22 & IEC62053-23 IEC61010-1:2001

Calibration and maintenance

Warranty	2 years
Calibration	Lifelong free calibration service
Recommended calibration interval	Every two years