GF313

Economical 0.2% 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, 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.

Functions

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

Features

1. Display vector diagram;
2. high resolution 6 inch TFT color LCD;
3. Measure CT variable ratio;
4. High precision measurement, min current 1mA;
3. Display waveform of U and I;
6. Analyze and display content of harmonic of U and I;
5. Industrial handheld designed;
8. Voltage and current synchronous sampling technology;
9. Measure 2-64th harmonic of U, I;
10. Measure the ratio or lag-angle of low-voltage transformer;
11. Store and display measured data;
12. With PC management software, download excel test report file;
13. Optional 5A, 20A, 100A,200A, 500A, 1000A, 2000A, 3000A current clamp;
14. Adopt 32 bit ARM processor, multi-channel 24 bit precision A/D convertor;
15. With various type current clamps, wide range of measurement and high precision;
16. 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	2nd-64st
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	2nd-64st

Electrical parameters - continued

| **Power & Energy measure error**	
Active power	±0.2% (0.01A-120A)
Reactive power	±0.5% (0.01A-120A)
Energy measure error	
Active energy	±0.2% (0.01A-120A)
Reactive energy	±0.5% (0.01A-120A)
Power/energy measurement temperature drift	< 15 x 10 E-6/K
Power/energy measurement relative humidity drift	< 12 x 10 E-6/RH@ 10mA-120A
Power/energy measurement stability	< 100 x10 E-6
Power/energy measurement long term stability	< 160 x 10 E-6/Year
Error display	5 digits with minimum three decimal places XX.XXX%
Phase angle	
Range	0°-360°
Resolution	0.01°
Error	±0.1°
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

Electrical parameters - continued

Scanning head
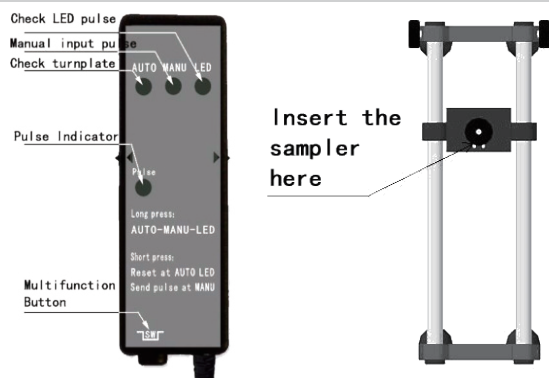
The sampler is equipped with a bracket which can clip/install on the tested electronic and electromechanical meters, and the sampler can insert to the 'orifice/slot' in the center of the bracket.
There are 3 status LED indicator:
[AUTO] – scan the turn-plate of the energy meter
[MANU] – Manual input pulse
[LED] – Receive the LED energy pulse

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

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