GF438II

Three Phase Power Quality Analyzer With 6000a Current Probe

GF438II handheld three phase power quality analyzer offer the best ability in power quality analysis, This hand-held power quality analyzer help locate, predict, prevent and troubleshoot power quality problems in three phase and single phase power distribution systems. Additionally, GFUVE patented energy loss algorithm, unified power measurement, measuring and counting energy losses due to harmonics and unbalance issues, allowing the user to pinpoint the origin of energy losses in the system.

GF438II three phase power quality analyzer supports the measurement automatically of 50 Hz and 60 Hz power frequency system. It can record and analyze different types of power quality parameters such as voltage, current, harmonic, frequency, fluctuation, flicker, swell, sag, power and three-phase unbalance of power supply line. It has advanced power quality measurement function and provides professional upper computer GFUVE-PQA analysis software for secondary analysis and produce word and excel report file. To provide users with the most accurate power fault diagnosis analysis. And there are Ethernet, binary contact input, binary contact output, USB and other communication ports, which can flexibly carry out network communication.

Application

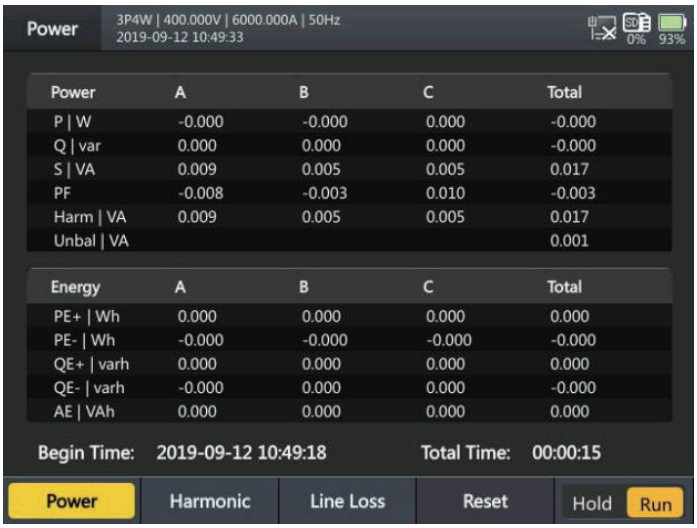
1. Oil, gas company;
2. Power generation;
3. Wind power plant;
4. Power distribution;
5. Hydroelectric power;
6. Power quality reports;
7. Electricity power utilities;
8. Renewable power plants;
9. Photovoltaic power station;
10. Power quality audit company;
11. Uninterruptible power supply;
12. Uninterruptible power supply in healthcare;
13. Recording transients of switching manoeuvers;
14. Large factory of steel and chemical enterprises etc;
15. Effects of power quality issues on living and working environment;

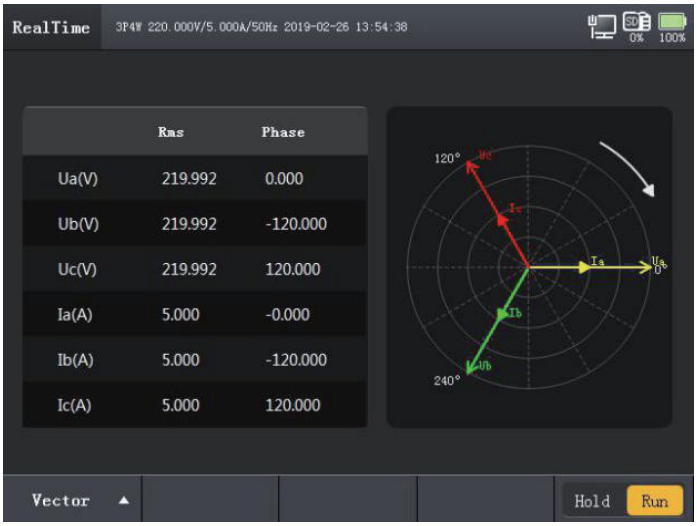
Functions

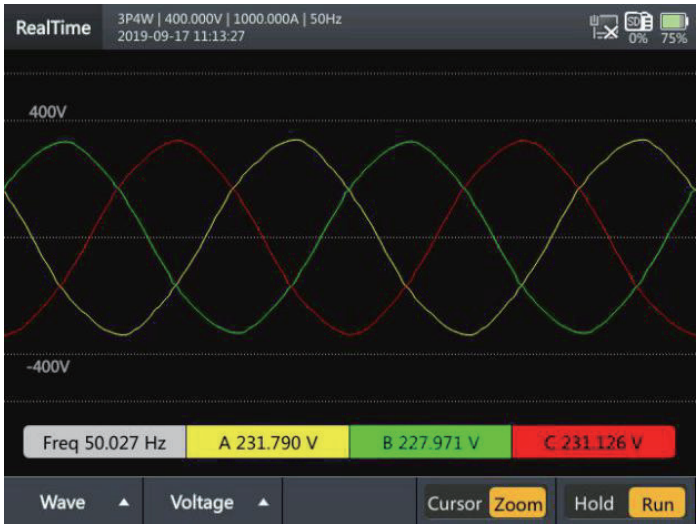
1. Fully class-A compliant: GF438II analyzers conduct tests according to the stringent international IEC 61000-4-30 class-A standard.
2. Mains signaling: GF438II analyzer measure interference from ripple control signals at specific frequencies.

3. Energy loss calculator: classic active and reactive power measurements, unbalance and harmonic power, are quantified to pinpoint true system energy losses in dollars (other local currencies available).
4. Power inverter efficiency: simultaneously measure AC output power for power electronics systems.
5. Power wave data capture: GF438II analyzers capture fast RMS data, show half-cycle and waveforms to characterize electrical system dynamics (generator start-ups, UPS switching etc.).
6. Waveform capture: GF438II capture 50/60 cycles (50/60Hz) of each event that is detected in all modes, without set-up.
7. Automatic transient GF438II analyzers capture 200 kHz waveform data on all phases simultaneously up to 1000V.
8. Troubleshoot: analyze the trends using the cursors and zoom tools.
9. Highest safety rating in the industry: 600 V CAT IV/1000 V CAT III rated for use at the service entrance.
10. Measure all three phases and neutral: with included four flexible current probes with enhanced thin flex designed to fit into the tightest places.
11. Automatic trending: every measurement is always automatically recorded, without any set-up.
12. Logger function: configure for any test condition with memory for up to 600 parameters at user defined intervals.
13. View graphs and generate reports: with included analysis software.
14. Power harmonic analysis from 2nd-63st, harmonic pollution analysis, in-harmonic analysis, hi-harmonic analysis.
15. Record up to 600pcs power energy parameters simultaneously;
16. 3s statistical interval, continuously record 1050h;
17. Support multi-range current transformer clamp;
18. Battery life: up to 6 hours operating time per charge on Li-ion battery pack.
19. System-monitor: ten power quality parameters on one screen according to EN50160 power quality standard.

Display




RealTime
3P4W 220.000V/5.000A/50Hz 2019-02-26 13:54:38
Rms
Phase
Ua(V) 219.992 0.000
Ub(V) 219.992 -120.000
Uc(V) 219.992 120.000
Ia(A) 5.000 -0.000
Ib(A) 5.000 -120.000
Ic(A) 5.000 120.000
120°
240°
Vector
Hold
Run


RealTime
3P4W | 400.000V | 1000.000A | 50Hz
2019-09-17 11:13:27
400V
-400V
Freq 50.027 Hz
A 231.790 V
B 227.971 V
C 231.126 V
Wave
Voltage
Cursor
Zoom
Hold
Run

PC software


PQAnalyzer
Statistic Data
Wave Record
Export Excel
Export Word
About
中文
EN
Basic
Harmonic
Power
Imbalance
Flicker
Compare
Transient
Threshold
All Datas
All Events
Time
board0 Volt Interrupt 1970-01-01 08:00:00.000
board0 Volt Sag 2021-11-20 10:54:58.003
board0 Volt Sag 2021-11-20 10:55:11.848
board0 Volt Sag 2021-11-20 11:10:45.806
board0 Volt Sag 2021-11-20 11:10:57.244
Event Information
Event Type: Volt Sag
Phase: A B C
Start: 2021-11-20 11:10:45.806
End: 2021-11-20 11:10:48.728
Duration: 2922 ms
Threshold: 323.000 V, 85.000 %
Value A: 236.323 V, 62.190 %
Value B: 179.398 V, 47.210 %
Value C: 233.010 V, 61.318 %
Voltage
A B C N
750
500
250
0
-250
-500
2021-11-20 11:10:46.000
2021-11-20 11:10:47.000
2021-11-20 11:10:48.000
Current
A B C N
20
10
0
-10
2021-11-20 11:10:46.000
2021-11-20 11:10:47.000
2021-11-20 11:10:48.000

Electrical parameters	
CLASS	A (IEC 61000-4-30)
Voltage	rms, ava, pk+, pk-, rms-1/2, CF
Frequency	Freq
Current	rms, ava, pk+, pk-, rms-1/2, CF
Power & energy	P, S, Q, PF, DPF, W
Computation	THD, DC, 1-63 Harm, 1-62 InHarm, 1-35 HiHarm, 1-62 SubHarm
Voltage harmonic	THD, DC, 1-63 Harm, 0-62 InHarm, 1-35 HiHarm, 1-62 SubHarm , KF
Current harmonic	THD, DC, 1-62 Harm
Harmonic power	Ia, Ib, Ic, ΣPtotal, ΣQtotal, ΣStotal, 15 minutes
Fluctuation and flickering	PST, PLT, Fluct, Fluct Max
Unbal	V Pos, A pos , V neg , A neg , V zero, A zero, Unbal
Event log	Voltage swell, voltage sags, DIP, surge current, voltage and current distortion out of limit, odd harmonics containing rate out of limited, unbalanced voltage current out of limit, frequency out of limit, PST out of limit, PLT out of limit, long-term voltage interruption, voltage fluctuation deviation, voltage harmonics out of limit, 2-25st harmonics out of limit
P, Q, S	**Measurement type**
Measurement types	P: Calculate by every 10 cycles S: Calculated by the effective value of voltage and current Q: Calculated by the apparent power, active power
Display	Table charts, trend chart
Measuring range	According to the range of the voltage and current
Resolution	0.001W
Accuracy	±0.5%
Urms	**Measurement type**
Mode	Calculated by the square root value of 10/12 cycle
Measuring circuit	1P2W/ 2P3W /3P3W/ 3P4W
Basic frequency of the measuring circuit	50Hz, 60Hz
Input channels	4 channel voltage, 4 channel current
Display mode	Effective current value of each channel
Range	120V, 230V, 400V, 1000V, Max 1000V instantaneous voltage
Resolution	0.001V
Accuracy	0.1% RG

Arms	Measurement type
Mode	Calculated by the square root value of 10/12 cycle
Display mode	Effective current value of each channel
Range	Current: according to the current clamps Option Current clamps:5A/50A/100A/500A/1000A Flexible Current probe: 3000A/6000A
Resolution	0.001A
Accuracy	0.1% + accuracy of the current clamps
Frequency	**Measurement type**
Measurement mode	Calculate by 10 cycles (50Hz) or (60Hz)
Display mode	Measurement by 10 cycles
Nominal frequency/resolution	50.000Hz/0.001Hz or 60.000Hz/0.001Hz
Bandwidth measurement	40.000Hz-70.000Hz
Accuracy	±0.001Hz
Half-wave RMS current/voltage	**Measurement type**
Measurement mode	Calculate by every 2 cycles. Each cycle ,1/2 cycle made up of a waveform calculation
Measuring range/resolution	Voltage: 120V/0.01V, 230V/0.01V, 400V/0.01V, 1000V/0.01V,Current: According to the current clamps
measurement accuracy	±0.1%
Power factor	**Measurement type**
Measurement mode	The ratio of average power to apparent power
Display mode	Real-time data showed
Measurement range/resolution	-1.000-1.000/0.001
Accuracy	±0.1%
Vfund, Afund, Harmonic power	**Measurement type**
Measurement mode	Meet IEC61000-4-7,Analysis time window is ten cycles
Window points	5120 points
Display mode	Form figure, trend charts, histograms
Number of measurement	1-50 Times(25Hz-3150Hz)
Measurement accuracy	Vfund >1%: Error<1% Vfund <1%: Error<0.05% Rated Voltage Afund >3%: Error<1% Afund <3%: Error<0.05% Current range

InHarm Voltage, InHarm current	Measurement type
Measurement mode	Meet IEC61000-4-7, Analysis time window is ten cycles
Window points	5120 points
Display mode	Form figure, trend charts, histograms
Numbers of measurement	1-16 groups
Measurement accuracy	Vfund >1%: Error<1% Vfund <1%: Error<0.05% Rated Voltage Afund >3%: Error<1% Afund <3%: Error<0.05% Current range
HiHarm Voltage, HiHarm current	**Measurement type**
Measurement mode	Meet IEC61000-4-7, Analysis time window is ten cycles
Window points	5120 points every 10 cycles
Display mode	Form figure, trend charts, histograms
Numbers of measurement	1-35 groups/2100Hz-8900Hz
Measurement accuracy	Vfund >1%: Error<1% Vfund <1%: Error<0.05% rated voltage Afund >3%: Error<1%
Voltage SubHarm Current SubHarm	**Measurement type**
Measurement mode	Meet IEC61000-4-7, analysis time window is ten cycles
Window points	5120 points every 10 cycles
Display mode	Form figure, trend charts, histograms
Numbers of measurement	1-50 groups
Measurement accuracy	Vfund >1%: Error<1% Vfund <1%: Error<0.05% Rated Voltage Afund >3%: Error<1%
Voltage/current Unbal (pos, neg)	**Measurement type**
Measurement mode	3P3W or 3P4W, using three phase of fundamental wave components to calculate
Display mode	Form figure, trend charts, histograms
Measurement accuracy	Voltage unbal: ±0.2% Current unbal: ±0.5%
Voltage fluctuation	**Measurement type**
Measurement mode	Calculate by the quadratic mean of half wave.
Display mode	Form figure, trend charts
Measurement accuracy	±1%
IEC Flicker	**Measurement type**
Measurement	P short term (Pst) , P long term (Plt)
Measurement mode	According to IEC61000-4-15 Standard to calculate Pst (10 mins) Plt (2 hours)
Display mode	Form figure, trend charts
Measurement range	0-20
Measurement accuracy	±5%

Surge current(Inrush current)	Measurement type
Measurement mode	Half-wave RMS of current is higher than set value and sustain time is 10ms-1min
Display mode	Maximum of the surge current and surge current wave
Measurement accuracy	0.1%
Voltage swell, Voltage sags, DIP	**Measurement type**
Measurement mode	Swell: When half-wave RMS of voltage is higher than set value and sustain time is 10ms-1min, judged as swell. Sags: When half-wave RMS of voltage is lower than set value and sustain time is 10ms-1min, judged as sags. DIP: half-wave RMS of voltage is higher than set value and sustain time is 10ms-1min, judged as DIP
Display mode	Swell, sags, DIP wave sustain time, extent and so on.
Measurement accuracy	0.1%
DC measurement	
Voltage	4 channel DC voltage
Range	0-1000V
Accuracy	0.1%
Current	1 channel DC current
DC current clamp	200A, 500A, 1000A optional
Accuracy	0.2%
Machinery	
Size	263mm x 168mm x 65mm
Key	21PCS
Binary	binary input:1 ; binary output:1
Comunication Port	USB, 10/100M port
Weight	1.6KG
Power supply	
Voltage input	100V-265V
Adapter output	15V, 3A
Battery	Rechargeable nickel metal hydride, 5500mAh
Battery working time	≥ 6h
Battery recharging time	5h (Environment temperature 25°C)
Power saving facility	LCD backlight brightness is adjustable, standby time is adjustable
Display	
Size	112.8 x 84.6mm
Color	260000 color
Resolutions	640 x 480
Brightness	Max 350 cd/m2 (Typ), brightness is adjustable
Contrast	500:1 (Typ)
Visual angle	70/70/50/70 (Typ.)(CR ⩾10) (Left/ Right/ UP/Down)

Store	
Type	TF card (inbuilt)
Size	32G
Function	
Vrms & Irms waveforms(8 channel)	Yes
Power/Energy	Yes
Voltage/Current harmonics	Yes
Harmonics Power	Yes
Flicker	Yes
Unballance	Yes
Inrush current	Yes
Event log	Yes
Transient monitoring	Yes
Energy line loss	Yes
Inverter measurement	Optional
GPS	Optional
Remote control	Optional
Networking management	Optional
WIFI, Bluetooth	Yes, optional
PC management software	Yes
Environment	
Working environment	0°C to +45°C, humidity below 90rh%
Storing environment	-20°C to +50°C, humidity below 95rh% (non-condensing)
Standards	
Measurement method	IEC 61000-4-30
Measurement performance	IEC 61000-4-30 A LVL, IEC 62586
Flickering	IEC 61000-4-15
Harmonic	IEC 61000-4-7, IEEE 519
Power	IEEE 1459
Power quality compliance	EN 50160
Safety	
Standard	GB 4793.1-2007/IEC 61010-1:2001: "Measurement, control and laboratory electrical equipment safety requirements", first part: general requirements.
MAX voltage of phase angle input	CAT III 1000V/CAT IV 600V

Current probe Optional

MODEL	Q8A2	HQ15	P18	P50	P50	FQ-RCT02	FQ-RCT03
Appearance							
Range	5A	5A(max 100A)	100A(max 120A)	500A	1000A	3000A	6000A
Measurement Range	5mA-10A	10mA-100A	10mA-120A	10mA-600A	10mA-1000A	1A-3000A	1A-6000A
Output Voltage	10mV/A	10mV/A	10mV/A	1mV/A	1mV/A	100mV/kA	58mV/kA
Accuracy	0.1%RG	0.1%RG	0.1%RG	0.1%RG	0.1%RG	1%RG	1%RG