



GDPQ-300M Power Quality Analyzer



General Information

GDPQ-300M Power Quality Analyzer is used to monitor basic indexes like three-phase fundamental voltage, advanced, reactive power power factor and advanced indexes such as Inter-harmonics, voltage fluctuation, flicker, voltage swell & sag, temporary over-voltage and transient over-voltage.

Industrial PC is used for data calculation, statistics, display, storage, keystroke and communication. XPE embedded operating system is adopted as the software platform, and all the software is programmed with VC++ high-level language, which guarantees the high reliability and high transplantation of the system.

The FPGA data acquisition adopts 16-bit high-speed A/D converter with 6 channels and synchronous sampling, which has high acquisition accuracy, and the measured accuracy meets the requirements of national class A standard of power quality monitoring index.

The hardware phase locked loop technology is adopted to automatically track the frequency, which prevents the influence on the monitoring index when the frequency of the power system changes, and prevents the frequency "leakage". The core hardware adopts four-layer printed circuit board (PCB) process and SMT process, and the hardware reliability and EMC capability reach the advanced level in China, and meet the EMC requirements of international standard for power quality monitoring device.

Features

- With self-calibration function, ensure the stability and reliability of moisture, purity and decomposition detection data throughout the year.

- **Basic detection index:**

Power grid frequency, three-phase fundamental voltage, current effective value, fundamental active power, reactive power, power factor, phase, etc.

Voltage deviation, frequency deviation, three-phase voltage imbalance, three-phase current imbalance, negative sequence voltage, negative sequence current;

Harmonics (2nd~65th): including the total harmonic distortion rate of voltage and current, harmonic ratio, amplitude and phase.

- **Advanced detection index:**

Inter-harmonics, voltage fluctuation, flicker, voltage swell & sag, short interruption, temporary over-voltage, transient over-voltage.

- **Display:**

The device panel is equipped with a large-screen color LCD display to show the data of power quality detection indexes in real time.

- **Settings:**

It can set, modify and view the basic parameters and over-limit parameters of the device.

- **Data transmission:**

Data transmission: the device is equipped with industrial Ethernet so as to interact with the background software, and communication rate is up to 100Mbps

It is also equipped with a USB communication interface, which directly stores the test data in the USB disk.

- **Data storage:**

The device is equipped with SSD solid state drive, which can save the basic detection indexes and advanced detection indexes in real time. The real-time data can be saved for up to one year on the device, and then updated according to the "first-in, first-out" principle.

- **Data statistics:**

The device has on-line statistical function of the major detection indexes, and can calculate the maximum, minimum and average values of the detection indexes within minutes.

- **Event-triggered fault recording:**

According to customer requirements, event trigger conditions can be set (manual or automatic) to record and save real-time data before and after event trigger, and the event log can be saved for query.

Specification

1) Error of fundamental voltage: $\pm 0.2\%$

Error of voltage deviation: $\pm 0.2\%$

2) Error of fundamental voltage: $\pm 0.5\%$

3) Error of frequency deviation: $\pm 0.01\text{Hz}$; measurement range: 45~55Hz

4) Three phase voltage imbalance:

- Absolute error of voltage imbalance 0.2%
- Absolute error of current imbalance 1%
- Phase sequence component of voltage & current: 0.5%

5) Measurement error of voltage fluctuation: $\pm 5\%$

Measurement error of flicker: $\pm 5\%$

6) Harmonic accuracy: class A

Class	Item	Condition	Max. permissible error	Phase error
A	Voltage	$U_h \geq 1\% U_N$	$5\% U_h$	$\leq \pm 5^\circ$ or $h \times \pm 1$
		$U_h < 1\% U_N$	$0.05\% U_N$	
	Current	$I_h \geq 3\% I_N$	$5\% I_h$	$\leq \pm 5^\circ$ or $h \times \pm 1$
		$I_h < 3\% I_N$	$0.15\% I_N$	

a. In the table above, U_N refers to nominal voltage, U_h is measured value of harmonic voltage; I_N refers to rated current, I_h is measured value of harmonic current.

b. Measurement range of instrument of class A: 0~2500Hz, used for accurate measurement. Measured phase error is less than $\pm 5^\circ$ or $\pm 1 \times h^\circ$.

7) Inter-harmonics: the requirement is the same as harmonics.

Electrical parameters

1) Power supply: AC 220V $\pm 10\%$; 50Hz ± 0.5 Hz; harmonic distortion $\leq 15\%$

2) Current signal input

- Rated value I_N : 5A, 60A/600A/600A (1pc flexible probe is optional)
- Measurement range: AC 10mA~6A, 10mA~6000A (1pc flexible probe is optional)
- Power consumption: ≤ 0.5 VA/channel
- Overload capacity: 1.2 I_N , continuously working; 2 I_N 1s is allowable

3) Voltage signal input

- Rated value U_N : 57.7V/100V, 220V/380V(customized), 400V/690V;
- Measurement range: AC 0.5V~120V, 0.5V~450V(customized);
0.5V~1000V(customized)
- Power consumption: ≤ 0.5 VA/channel

- Overload capacity: 1.3Un, continuously working; 1.4 Un, 1s is allowable

Use conditions

- Normal working temperature: -10°C~+55°C
- Working temperature limit: -20°C~+65°C
- Relative humidity: 5%~95%
- Protection class: IP50