Huazheng®

HZDZ-3
Power Quality Analyser



Huazheng Electric Manufacturing (Baoding) Co., Ltd

Dear user:

Thank you for choosing HZDZ-3 Power Quality Analyser.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life. "Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

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I.Overview

Power quality refers to the quality of the AC power supply via the utility grid to the user, which normally means the good or bad situation of the electric energy in transmission line. Power quality problems are mainly caused by the load side of the terminal. For example, impact reactive load will lead to serious fluctuates to power network voltage, and decrease the quality of power supply.

With the development of power electronics technology, on one hand, it brought positive side to the modern industrial energy efficiency and energy conversion. On the other hand, while the power electronic devices are widely used in all walks of life, it also has brought new and more serious damage to the power quality, and has become the main source of harmonic in grid.

The increasing use of rectifiers, frequency control devices, electric arc furnaces, electric railway and a variety of power electronic devices in each distribution system, impact the electricity network or called power pollution. It causes voltage instability, over-voltage, generates harmonics and so on. Harmonic makes efficiency of electricity production, transmission and utilization reduce, so that the electrical equipment will be overheat, vibration and making noise, and insulation aging, shortened life expectancy, and even failure or burned. Harmonics can also cause localized power system an occurrence or series resonant parallel resonance, so that the harmonic content is amplified, resulting in capacitors and other equipment destroyed.

Electrical properties of non-linear, impact resistance and unbalanced of these kind of load, causes serious pollution to the quality of power supply. Thus, eliminating the higher harmonic problem in supply and distribution system has a very positive meaning in improving the power quality issues and ensuring power system security, stability and economic operation.

On the other hand, electronic devices in modern industrial, commercial and residential users are more sensitive to power quality, and have a higher requirement of quality of power supply. Currently, harmonics, electromagnetic

interference, power factor reduction have been tied to the three hazard of the power system.

When it is interfered or contaminated, grid power quality can't reach the national standards, so it has to be targeted on the grid power quality improvement. To understand the actual situation of power quality, you must have the appropriate equipment to test and analysis the actual situation. Counter the domestic condition, our company developed the professional power quality analysis instrument, which is suitable for the country.

II.Functions and Features

1. The instrument is designed as a high-precision test equipment to detect grid waveform distortion occurrence, the harmonic content, voltage fluctuations and flicker and phase imbalance of power quality problems; It also includes electrical parameters testing, vector analysis functions.

2. It can accurately measure a variety of electrical parameters, such as voltage, current, active power, reactive power, phase angle, power factor, frequency, etc.

3. It can display the vector diagram of the measured voltage and current, by analyzing which users can judge if the metering device wiring is correct or not.

4. Current is measured by using the clamp transformers. You can easily and securely do the measurement, because of the use of clamp current transformers, without connecting the current loop. Depending on the user's measurement range, you can be equipped with different range of clamps.

5. Measurement and analysis of the AC power quality from the utility grid to client can be done easily, its measurement and analysis: frequency deviation, voltage deviation, voltage fluctuations, flicker, three-phase voltage unbalance factor and harmonic.

6. It can display single-phase voltage, current waveform and can display three-phase voltage and current waveform at the same time.

7. All testing interface is functioned with a screen lock feature to facilitate reading and analysis of user data.

8. Load fluctuations monitoring: It can measure and analysis fluctuations on the utility grid power quality caused by a variety of electrical equipment at different operating conditions. Record and store trend of electrical parameter, such as voltage, current, active power, reactive power, apparent power, frequency, and phase at a regular time.

9. It can do electrical equipment adjustment and dynamic monitoring during operation, and help users to solve the power adjustment and commission process problems.

10. It can measure and analysis the dynamic parameters of reactive power compensation and filtering devices in the power system, and make quantitative evaluation of its features and technical specifications.

11. Users can set different storage interval, and it will successively store data according to the set time interval;

12. High-capacity data storage is equipped inside. It can store 18 consecutive months or more according to one minute interval, which meets the needs of long-term monitoring testing points.

13. The instrument includes a USB connector, which can be easily used to copy the data directly to the backstage management computer.

14. It coordinates with powerful data management software, and can directly upload real-time sampling data to backstage management compute, which can do a more comprehensive and rapid treatment in the background.

15. It has a calendar, clock function, which can display date and time in real-time. You can detect at the scene while saving test data and results, and upload to a computer via serial connector, then realize computerized data management through the backstage management software (optional), with powerful reporting capabilities.

16. Large-screen imported color LCD is used as a display, and Chinese user interface is equipped with Chinese character prompt, multi-parameter displaying LCD interface, friendly interactive interface.

17. LCD will automatically enter power-saving mode when there are 3 minutes

without operation in order to maximize the extending battery life.

18. It uses conductive silicone keypad, which feels good, long life, reasonable design, and easy to operate.

19. High-capacity, high-performance lithium-ion rechargeable battery is equipped inside, which can continuously work for more than 10 hours if the battery is fully charged.

20. It has a small size, light weight, easy to carry. It can be used both as site testing measurement and as the standard measurement equipment in laboratory.

III. Technical Specifications

1. Input characteristics

Voltage measuring range: 0～200V～800V, automatic cutting gear.

Current measurement range

Clamp transformers (three types): 5A / 25A (standard)

100A / 500A (optional)

400A / 2000A (optional)

1000A / 5000A(optional)

Phase angle measuring range: 0 ~ 359.99 °.

Frequency measurement range: 45 ~ 55Hz.

Voltage channels: three-channel (UA, UB, UC).

Current channels: three-channel (IA, IB, IC).

Maximum harmonic analysis times: 63 times.

Maximum continuous storage period in 1minute interval: 18 months.

2. Accuracy

Measurement of electrical parameters section:

Voltage: ± 0.1%

Frequency: ± 0.01Hz

Current, power: ± 0.5%

Phase: ± 0.2 °

Power quality section:

Fundamental voltage tolerance: ≤0.5% F.S.

Fundamental current tolerance: ≤1% F.S.

Phase between fundamental voltage and current measurement error: ≤0.2 °

Percentage of harmonic voltage measurement error: ≤0.1%

Percentage of harmonic current measurement error: ≤0.2%

Three phase voltage unbalance error: ≤0.2%

Voltage deviation error: ≤0.2%

Voltage fluctuation error: ≤0.2%

3. Working temperature: -10 ℃ ~ + 40 ℃

4. Charging Power: 220V AC, 45Hz-55Hz frequency

5. Host Power: ≤3VA

6. Battery maximum working time: ≤10 hours

7. Insulation:

1) The insulation resistance between the voltage, current input terminal and the housing ≤100MΩ.

2) Withstand 1.5KV (valid value) with power frequency on operating power input and the shell, which lasts one minute.

8. Size: 320mm × 240mm × 130mm

9. Weight: 2.0Kg

IV.Notes

1. Do not touch the metal parts of the test line during measurement process to avoid electrical injury.

2. Measurement wiring must operate in strict accordance with the instructions to ensure personal safety.

3. Better use of power outlet with ground.

4. Do not work in the case of excess voltage and current limits.

5. Each clamp must be accordance with the corresponding socket on the panel, otherwise it will affect the test results.

6. You must follow the principles of accessing the instrument before the device under test

when connecting to the instrument, and the principles of removing the device under test before the instrument when splitting the instrument for voltage line and clamp.

7. Pay attention that you must turn off the power supply switch whenever testing is finished, because sometimes the LCD backlight automatically goes into power-saving mode, but the LCD screen does not display while the instrument is still working as normal. That's why you must turn off the power switch.

8. When monitoring during a long time, be sure to connect to the power wire, otherwise the internal power supply will be so exhausted that it'll be unable to complete the monitoring.