What's a PQA?

Power Quality Analyzers are essential in today's modern commercial and industrial facilities. With an ever-increasing number of electrical and electronic devices, power quality problems are becoming much more common.
Harmonics, transient events, sags, swells, flicker, voltage interruptions, inrush currents and changes in the power frequency are some of the common power quality problems that can be detected by a power quality analyzer. Overheating motors and transformers, process control devices acting unpredictably, computers that shut down – these are often the symptoms of power quality problems.

About HIOKI

Established in 1935, HIOKI E.E. CORPORATION has grown to become a world leader in providing consistent delivery of test and measuring instruments through advanced design, manufacturing, and sales and services. By offering over 200 main products characterized by safety and quality while meeting an expansive range of applications, we aim to contribute to the efficiency and value of our customers' work in research and development, production and electrical maintenance. HIOKI products and services are available around the world through our extensive network of subsidiaries and distributors.

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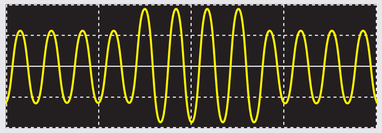
instrumentos de medida

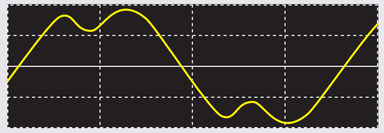
Understanding Power Quality

Voltage Swell (Surge)



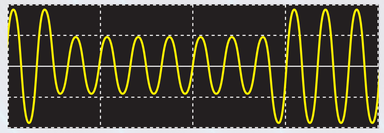
An instantaneous voltage increase caused by lightning strikes, opening or closing of a power supply circuit, high capacitor bank switching, ground short circuit, or cutting a heavy load, etc. Swells may also occur due to the grid connection of a new energy source. A sudden increase in voltage may damage or reset the power supply of equipment.

Harmonics



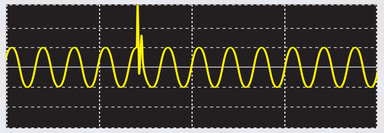
Harmonics are generated by semiconductor control devices in the power supply of equipment as a result of distorted voltage and current waveforms. When the harmonic component is large, it may cause serious accidents such as overheating or noise in motors or transformers, burn out reactors in phase compensation capacitors, etc.

Voltage Dip (Sag)



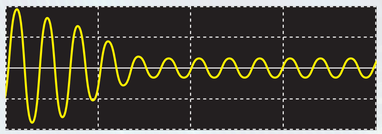
Most sags are caused by natural phenomena like thunder and lightning, and are represented by instantaneous voltage drops caused by the cutting off of the power supply circuit due to a short circuit to the ground or high inrush current when starting a large motor. A voltage drop may cause a stop or reset of equipment, turn off lighting, speed change or stop of motor, and synchronization error of synchronous motors or generators.

Transient Overvoltage



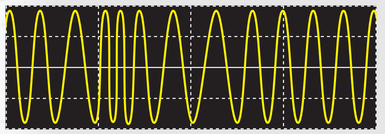
Voltage change generated by a lightning strike, contact problem and closing of a circuit breaker/relay. It is often a rapid change and consists of high peak voltage. Damage to an equipment's power supply or reset function often occurs near the generation point due to its high voltage.

Inrush Current



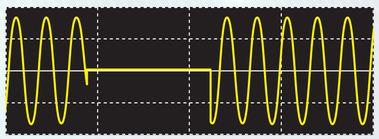
A large current that flows instantaneously at the moment electrical equipment, a motor, or similar devices are powered on.

Frequency Fluctuations



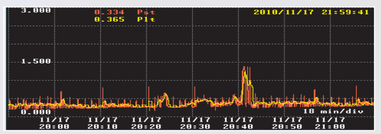
An excessive increase or decrease of the load causes the operation of a generator to become unstable, resulting in frequency fluctuations.

Interruptions



A power outage over an instantaneous, short or long period. It is caused by accidents such as lightning strikes or tripping of the circuit breaker because of a short-circuit. Recently, UPS are widely used to protect equipment, but this type of device may also cause a stop or reset of other equipment.

Flicker



Flicker is a periodically repeated voltage fluctuation caused by a furnace, arc welding, or thyristor controlled load, and might cause lights to flicker or equipment to malfunction. When the flicker value is high, most people feel uncomfortable because of the flickering lights.