

Power quality issues

A number of power quality issues including electrical harmonics, poor power factor, voltage instability and imbalance impact on the efficiency of electrical equipment. This has several consequences including:

- ⚡ damage to sensitive equipment
- ⚡ lowering productivity and increased energy costs
- ⚡ increased expenditure on electrical assets when plant or building expansion is necessary
- ⚡ impairment of the safety of electrical installations
- ⚡ productivity interruptions and plant down time
- ⚡ penalties imposed by utilities
- ⚡ equipment failure or malfunctions
- ⚡ equipment overheating
- ⚡ voltage instabilities

Energy management is an important consideration for any business, and it is critical that power quality be assessed as part of any energy management strategy.

Causes of power quality issues

Power quality problems can be caused by:

- ⚡ harmonic distortion and voltage fluctuations
- ⚡ poor power factor
- ⚡ power electronic loads
- ⚡ undersized circuits
- ⚡ unbalanced loads

How Brandis Industries identify power quality issues

Using the latest test equipment, Brandis Industries identify power quality issues, provide detailed analysis and reporting (with recommendations). Measurements that can be taken include:

- ⚡ RMS voltage: the normal measure for sinusoidal AC signals
- ⚡ Peak voltage: the peak voltage reached (positive or negative)
- ⚡ RMS current: the normal measure for sinusoidal AC signals
- ⚡ Peak current: The peak current reached (positive or negative)
- ⚡ Power: Consumption
- ⚡ Power Factor: efficiency of energy use
- ⚡ Harmonics: Electrical interference and unwanted frequencies
- ⚡ Flicker: Spurious dips or surges in supply
- ⚡ Phase Angle: Effecting the power factor
- ⚡ Frequency: tracking
- ⚡ Wave Shape: Ideally sinusoidal but will contain harmonics
- ⚡ Inrush currents: Start up effects of motors and inductive loads
- ⚡ Balance: The loading between phases on three phase sources.
- ⚡ Energy: Usage.

The benefits of Power Monitoring

Power quality analysis or monitoring should be used to help identify areas of your electrical infrastructure which can be improved and can also be used to help plan your maintenance activities. The Benefits of Power quality analysis or monitoring include:

⚡ Identification of system inefficiency

With power monitoring, you will be able to monitor and track your entire system. Not only that, you will also receive valuable insights into your electrical subsystems. This information will help you identify the inefficiencies in your system. Power monitoring also provides you with information regarding the operational characteristics of the electrical system. With this, you will know where, when, and how the energy is been consumed. You will also be able to detect which loads are consuming the most energy. This information can help you reduce your energy consumption.

⚡ Reduction in peak demand

Peak demand or peak load is the period when electrical power is provided at a higher level than the average supply level. Power monitoring can identify why and when you reach your peak capacity, thereby, avoiding demand penalties.

⚡ Environmental benefits

Knowledge of the energy consumption in your facility helps identify a range of ways to boost your efficiency, minimise waste and lower your rates of energy consumption.

⚡ Notification for impending maintenance

Data gathered from power monitoring can be used to identify when equipment exceeds its designed or set parameters. This allows you to plan ahead before you face any equipment failures, breakdowns or shutdowns.

⚡ Cost savings

The benefits of power monitoring can have a substantial impact on the bottom line of your business. By reducing energy consumption and monitoring the equipment of your facility, it can save you considerable costs.



Figure 1: Power Monitoring being conducted onsite