

Case Study

Solving Micro Outages and Improving Production Efficiency In The Recycling Industry



Overview

The recycled packaging industry plays a significant role in food safety and convenience markets. Packaging production utilizes an exceptional amount of recycled content in Europe and around the world. To keep this success going, the recycled packaging industry must strike and constantly maintain a fine balance between sustainability, performance, and cost.

Power quality disturbances, such as sags and swells, harmonics, voltages drops, over-voltages, voltage fluctuations, frequency variations and transients are common power quality issues and are major contributors to financial losses of modern industrial and commercial users. They can cause manufacturing interruptions, loss of production, product damage and waste of energy.

Realizing the potential magnitude of losses due to these disturbances, more and more industrial and commercial customers seek continuous detection, analysis, and solutions for solving power quality disturbances.

Huhtamaki is a leading Nordic packaging company operates in 38 countries and 114 locations around the world. Huhtamaki recycled packaging plant at the Czech Republic experienced micro-outages on the electrical network. Their machines showed frequent failures caused by voltage drops. They decided to approach Elspec.



Advanced power quality analysis unveils the issues

Elspec with its agent in the Czech Republic, Blue Panther, conducted an in-depth power quality audit using the Elspec G4500 [portable power quality analyzer](#) to make a detailed analysis on a single transformer. The analysis revealed voltage drops coming mainly from production machines, operating in peak current consumption, which destabilized the plant's internal power supply network.

The recommendation was to install an Elspec [power factor correction system](#) – The Equalizer – for reactive power compensation. In addition, we presented an energy savings audit generated using our unique Simulation Software which simulates the effect of the Equalizer system and voltage reduction on the customer's network, using a patent protected algorithm. Calculations are based on real cycle by cycle measurements, and so our software accurately predicts upcoming savings using our system.



Elspec G4500 Analyzer Measure, Store & Analyze with Best Accuracy

- Records 5,000 power parameters continuously
- Records at rates of ½ cycles, 10/12 cycles, 150/180 cycles, 10 min and 2 hours.
- Exceeds memory limitations – The only solution with the ability to measure, store & analyze waveform signals continuously with no memory limitations.
- Complies with IEC 61000-4-30 CLASS A

The Equalizer - Real Time Reactive Power Compensation System

The Equalizer is a real-time high performance power quality solution for dynamic load compensation for substantial energy efficiency. Elspec's all in one Equalizer is a highly accurate real time power quality solution to compensate reactive power, eliminate voltage drops, harmonics filtration, reduce voltage flickering & fluctuations, enhance machinery life time, and improves production quality. The Equalizer offers multiple features in one simple solution. This is a unique system that compensates low to medium voltage loads in real time.



Exceeding the Expectations

Installing the Equalizer reactive power compensation system led to:

- Electrical network stability improved significantly.
- Machine failures caused by voltage drops were eliminated.
- In the longer term, machine malfunctions have decreased.
- Higher-than-expected energy saving was achieved.

Based on the above, the customer ordered additional audits for another transformers. These audits revealed additional energy saving possibilities, resulting from merging the production power supply to one of the two transformers.

The reason for this merge was in order to relocate the transformer for the construction of a new production line. Installing 4 additional Equalizer systems in the facility led to high production efficiency.

The ability to produce the same product at much lower cost placed this plant in the 2nd



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