CHAUVIN ARNOUX

# "How a harmonic filter solved a malfunction"

Context

"Shortly after the start of the season, we noticed a malfunction: the gondola lift was going out of service unpredictably. The system went into safe mode, cutting off the power supply during peak hours, even though the electrical installations were rigorously maintained.

The cause of the failure was difficult to identify. The electrician launched a measurement campaign using a network analyser, the Qualistar Class A, model CA 8345. These measurements revealed a phenomenon that was unknown to us: electrical harmonics."

Problem

"The analysis revealed a high presence of harmonics at certain times, corresponding to the maximum use of the new fryers in the mountain restaurant. Due to their regulated heating technology, these instruments generate non-linear currents that disrupt the electrical network. The peak observed on the 23rd harmonic created a resonance phenomenon with the rest of the installation, causing untimely triggering of the main differential circuit breaker."
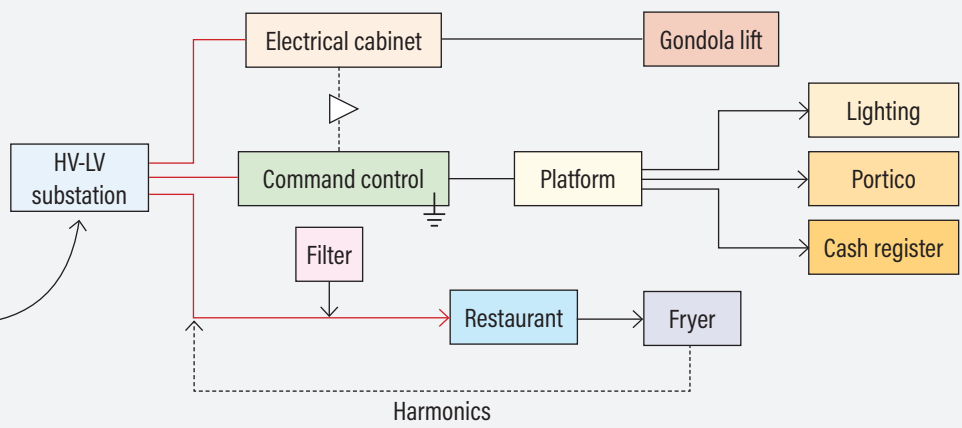
Simplified diagram of the electrical installation

Measure up

Solution

The electrician recommended a simple and effective solution: installing a passive filter. This device, placed in parallel with the fryers, targets disruptive frequencies with accuracy to eliminate them.

Conclusion

Since the filter was installed, there have been no more interruptions: the gondola lift is working perfectly.

This return to normal has allowed us to save the season and avoid any impact on our image. We have understood the importance of balance and energy quality in a complex installation."
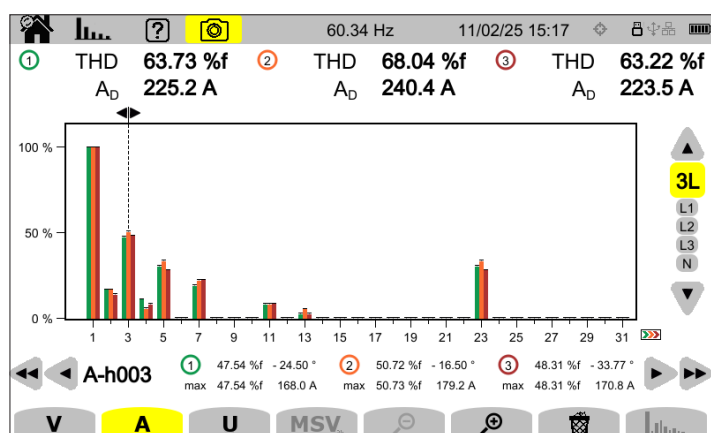
Screen: Representation of measured harmonics on the installation

Power and energy quality analyser, Qualistar Class A, CA 8345

Le Qualistar CA 8345 is a three-phase electrical network analyser with a colour graphic display and integrated rechargeable battery.

It has three functions. It allows:

- Measurement of effective values, power and disturbances on electricity distribution networks.
- Obtaining an instantaneous image of the main characteristics of a three-phase network.
- Monitoring variations in different parameters over time.

It is highly flexible thanks to the choice of different sensors for measurements ranging from a few milliamperes (MN93A) to several kiloamperes (AmpFlex®).

The instrument is compact and impact-resistant.

The ergonomics and simplicity of its user interface make it easy to use.

The **Qualistar CA 8345** is designed for technicians and engineers working in electrical installation and network control and maintenance teams.

CHAUVIN ARNOUX GROUP