



Improving Production Economics with Better Power Quality

Challenge

Most of the production machines at the textile factory are equipped with low voltage 6-pulse variable speed drives, which are one of the key contributors to high harmonic distortions. Close to 90% of the overall factory loads consist of Variable speed drives (VSDs) and other non-linear loads. Other non-linear loads in the factory include office loads such as lighting, computers, etc.

These non-linear loads created harmonic distortions which clearly exceeded allowable limits. Voltage harmonic distortions were approximately 8% and current harmonic distortions were well over 10%. Impacts were immediate when electronic cards started to burn more frequently. Moreover, lifetime of capacitor banks was significantly reduced, and overheating of transformer and cables of the factory were also recorded.

Solution

In order to properly size the solution, it was mandatory to perform a power quality audit. This was carried out by Merus Power along with the local partner, to determine current and voltage harmonic distortion levels. The audit confirmed harmonic levels exceeding IEEE 519 levels at the factory. It was also noted that certain individual harmonics were quite high, such as 5th, 7th and 9th order.

Merus™ A2-series Active Harmonic Filter was delivered on time and installation went smoothly. It was installed after the transformer, parallel to the loads to be compensated. As per customer requirements, Merus™ Active Filter was configured to the selectable mode. In this mode, it is possible to flexibly choose which harmonic are to be cancelled and how much.

Result

With Merus™ A2-series Active Harmonic Filters, the harmonic cancellation response created by IGBT-based power electronic technology, proved very effective and brought elevated harmonic distortion levels below maximum limits specified by IEEE 519. Individual harmonics which were also quite high earlier, are now negligible.

Plant operations have now run smoothly, without unexpected downtimes. Lifetime for electronic cards was restored to normal levels, creating positive impact on the production economics. Transformer and cables are no longer heating up excessively and other plant components are expected to meet their lifetime expectations.



Application:
Textile Industry

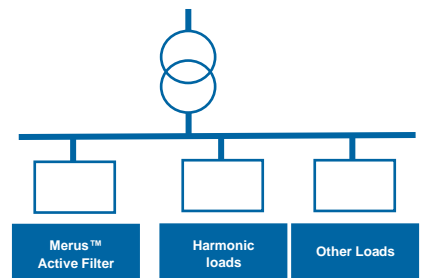
Location:
Sheikhupura/Pakistan

Power quality issues:

- High harmonic distortions

Merus™ Solution:

- Merus™ A2-series Active Harmonic Filters



Customer Benefits:

- Significant reduction in downtime and maintenance cost of the plant
- Harmonic distortions well within global specified limits
- Reduced losses in transformers and cables
- Maximized productivity
- Extended plant lifetime.