



# Bringing Total Current Harmonic Distortions (THDi%) from over 35% to under 5% in a textile spinning factory

## Challenge

Spinning processes at the factory were fed by a single transformer, sized at 2500VA. A large number of AC drives with small ratings were feeding all the spinning machines, such as carding, ring frame, auto cone and simplex. The factory was experiencing failure of variable speed drives and PLC modules, overheating of the transformers and burning of the electronic cards.

A power quality audit at the site was recommended and carried out by Merus Power's local partner ST Tekno. The audit revealed an extremely distorted waveform. The average Total Current Harmonic Distortion (THDi%) was recorded approximately 37% whereas maximum THDi% was touching approx. 50%. Total Voltage Harmonic Distortion (THDv%) was also reaching 10%.

## Solution

Safe operation of the electrical equipment, which operated with such poor power quality, cannot be guaranteed and explains the issues faced by the customer. Merus Power's technical team reviewed the power quality report shared by ST Tekno and sized a Merus™ Active Harmonic Filtering solution to bring both the voltage and the current distortions under desired limits.

A compact Merus™ A2-series Active Harmonic Filtering module with an IP20 protection was shipped from the factory and was integrated into a cabinet by ST Tekno locally. Solution was installed parallel to the loads in a closed-loop configuration. Merus™ Active Harmonic Filtering solution was commissioned in a selectable harmonic mitigation mode which was configured via the HMI.

## Result

After commissioning the Merus™ Active Harmonic Filtering solution, post-commissioning measurements were carried out by ST Tekno to validate the performance of the solution. These measurements confirmed excellent performance, with total current harmonic distortions minimized under 5%. Voltage harmonics were also brought below the desired limits.

By feeding the electrical equipment with pure sinusoidal waveform, the problems associated with poor power quality such as burning of electronic cards, reduced life of electrical equipment and overheating of transformers were successfully solved.

*"We are very satisfied with Merus™ Active Harmonic Filters. After installing the Merus™ solution, the overall power quality significantly improved in our facility and we noticed a major reduction in electronic cards burning and overheating of the transformer."*

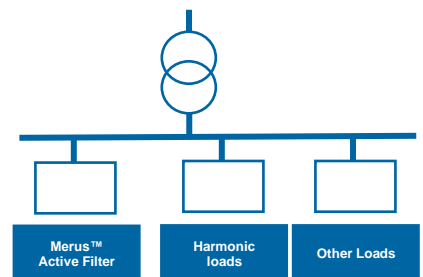
**Uğur PABUÇCU - Energy Manager**  
Balsuyu textile mills



**Application:**  
Textile spinning, Textile industry

**Location:**  
Kahramanmaraş, Turkey

**Customer Background:**  
Balsuyu textiles manufactures yarn with a production capacity of 45-50 tons/day. Balsuyu textile plant is a part of a bigger Balsuyu group, which also carries out activities in metal, energy and several other sectors.



### Customer Benefits:

- Longer lifetime of electronic cards
- Avoiding overheating of the transformer
- Longer lifetime of PLC and variable speed drives
- Compliance with the IEEE519-2014