



# Mitigating harmonics in a greenhouse application

## Challenge

The greenhouse lights, totally in 22MW, are a source of high harmonic currents. Especially the 3rd harmonic was causing high current in the neutral wire which resulted in over heating of the wires and other power system components, for example the transformer.

The customer had explored different solutions, in which the noise level and the footprint remained as issues. Furthering the challenge, the solution could not be implemented to the main distribution panel to lower the noise level, as the neutral currents would significantly strain the network, and in the main distribution board power quality solutions would cause resonance with capacitance in the system.

## Solution

Due to the customer's need to solve this issue, they had measurements done by a third party, which led to Merus Power being recommended as the supplier.

Merus Power's suggested the new Merus™ A2-series Active Harmonic Filters as a solution which was supplied through a third party. Merus™ A2-Series filters have a small footprint and low audible noise level, thanks to the modern 3-level topology.

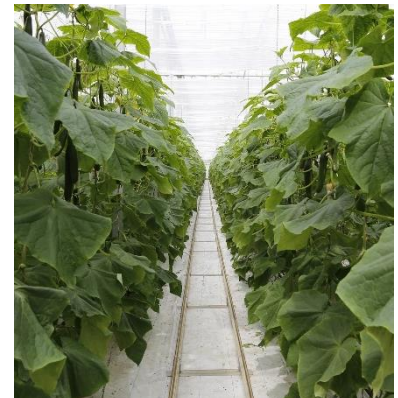
The solution consisted of 24pc Merus™ A2-series 100A Active Harmonic Filters, installed in cubicles and parallel to the loads in the distribution boards. The silence solution was needed because the distribution boards are located in the greenhouse space where the cucumbers are grown and the gardeners work.

## Result

With the solution, 3rd, 5th and 7th harmonics were mitigated with minimal noise pollution. As a result, harmonics were mitigated beyond expectations and the workers of the greenhouse felt their wellbeing at work had risen significantly due to the noise pollution being lower than before.

***“The harmonics caused by our greenhouse lights have been eliminated and the wellbeing of our workers has risen due to significantly lower noise from the active filters.”***

**Mr. Jan-Erik Sigg – Owner  
Jan-Erik Sigg AB Greenhouse**



**Application:**  
Greenhouse

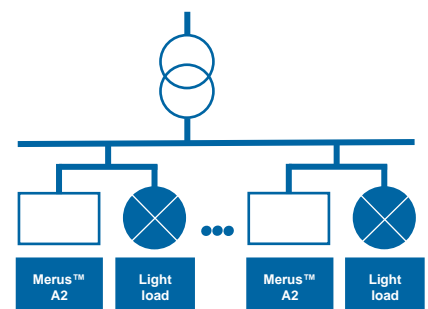
**Location:**  
Närpiö, Finland

**Power quality issues:**

- High harmonic current distortion

**Merus™ Solution:**

- Merus™ A2-series Active Harmonic Filters



### Customer Benefits:

- Effective mitigation of harmonics
- Small footprint
- Low noise