

# Case Study: Fault Condition Fails to Turn Off Heaters



# Quad Plus®



A system fault for this A/V manufacturer created a dangerous situation.

## Objective

- Eliminate conditions that could lead to a catastrophic fire while troubleshooting a system fault.

## Solutions

- We discovered a communication error between the customer's drives and controller/HMI.
- The logic in the drive was adjusted with an additional permissive to ensure heaters are shut down when a fault occurs.
- Discovered a few points of failure to investigate if the fault reoccurs.
- Discussed remote support options for faster future response.

## Results/Benefits

- Eliminated the conditions that allowed heaters to remain on while the line was inoperable to prevent fires and melted products.
- Identified points of failure to investigate in the case of future faults.
- The customer can rest easy knowing that fast, remote help is always available.

## Background

The Quad Plus team was called out by a customer who manufactures projector screens for the A/V industry. Their production line had a fault condition, which produced a code for a specific issue. The line condition where the machine failed generated the fault, but the heaters on the line did not respond to the fault condition.

While the system recognized something was wrong, the logic was not responding properly. When the fault occurred, the entire system should have stopped. In this case, with the heaters still running, a fire or melted products could have resulted.

## Quad Plus Solution

Upon investigation, we discovered a communication error between their Parker AC890 drives and their controller/HMI. The lines stopped, but the error prevented the heaters from turning off, which led to dangerous conditions for the customer.

We made an adjustment to the logic in the drive with an additional permissive in the rung that enables the heaters. Further investigation led to a few potential causes of the communication fault, but we could not find anything conclusive.

We recreated the fault on that communication and confirmed that the heaters were off. The safety of the process has been significantly improved, and we discussed the possible points of failure to investigate if the comm fault reoccurs. We also discussed options for providing remote support to the customer for faster response in the future.