

# Sight Machine Electronics Assembly Agent

Real-time agentic insights that improve quality for highly automated electronics assembly processes

In modern electronics manufacturing, maintaining high product quality while managing process complexity and component variability is a constant challenge. Environmental factors such as temperature and humidity can also impact production.

The Electronics Assembly Agent uses real-time manufacturing data to detect process anomalies and predict quality deviations in electronics assembly operations. It delivers dynamic, condition-aware process recommendations to maintain optimal quality despite environmental or component variability.

## How the Electronics Assembly Agent Works

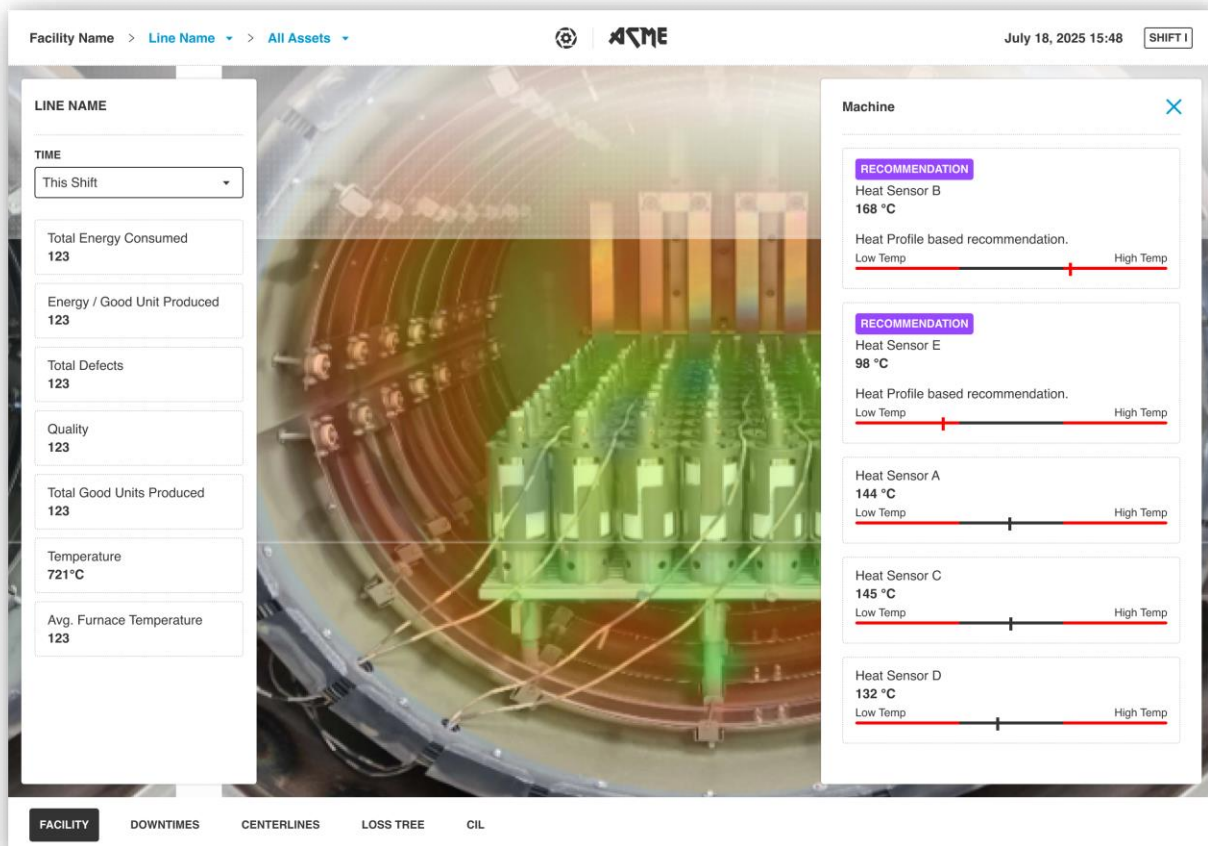
The Electronics Assembly Agent uses a multi-agent architecture, consisting of:

- **Orchestrator Agent** – Manages coordination between specialized agents based on real-time process context
- **Root Cause Analysis Agent** – Surfaces root cause of quality issues and suggests corrective actions, reducing time spent on manual investigations
- **Anomaly Detection Agent** – Identifies abnormal behaviors in the electronics assembly process that impact quality and alerts teams early when process deviations occur
- **Process Optimization Agent** – Recommends optimal process setpoints such as temperature, vacuum adjustments to minimize defects and maximize quality

Each agent uses pre-validated machine learning (ML) tools to ensure that the results are highly accurate.

Built on Azure AI Foundry Agent Service, this agent delivers real-time insights and predictive analytics to shop floor teams through a natural language interface, without requiring data science expertise.

The Electronics Assembly Agent generates recommended setpoints in real-time, focused on improving quality, with process adjustments tailored to current conditions and reducing reliance on manual checks. It also provides root cause insights that accelerate corrective workflows and detects anomalies which can predict quality failures before they impact production.



## Accessing the Electronics Assembly Agent

The Electronics Assembly Agent runs continuously in the background, analyzing real-time manufacturing data streams to optimize automated electronic assemblies for quality deviations and early detection of defects. The agent is responsible for planning and executing the analytics strategy and communicating the results to the operator or engineer.

Shop floor teams at automated assembly lines in Electronics manufacturing can now leverage agentic AI and recommendations to improve quality and optimize performance.

All recommendations are surfaced directly in the Sight Machine interface and integrated into a 3D digital twin, built with OpenUSD and NVIDIA Omniverse technologies and rendered in real time with NVIDIA GPUs on Azure.