



Meeting customer demands for increased production capacity and capability through automation



ABOUT

[Imperial Electronic Assembly](#) is a leading manufacturing service provider with over 30 years of experience. They were founded in 1988 in Danbury, CT; after 13 years of industry-leading growth, they relocated to a 45,000 square foot facility in Brookfield, CT.

Imperial's expertise ranges from printed circuit board assembly to cable and harness manufacturing, to completed electro-mechanical rack and box assembly, with all production being handled in-house.

Imperial's three-decades of success can be attributed to their commitment of building strong, long-lasting customer relationships. They strive to provide customized manufacturing solutions by providing first-class service and collaborative engineering support.



CHALLENGES

As a contract manufacturer, Imperial was faced with a wide variety of business needs as their company grew. This included servicing several vertical markets, including medical devices, the military, energy companies, telecommunications conglomerates, and security providers.

As Imperial experiences continued growth, they wanted to meet customers demand for New Product Introduction as well as cycle time improvements. Additionally continuous technology improvements resulted in the need for higher-density, complex electronic assemblies. Imperial was challenged to increase production capacity and capability for its customers through automation, while maintaining highest quality standards.





SOLUTIONS

In 2014 Imperial was an early adopter of Panasonic Connects AM100, for their high mix production needs. The highly versatile component placement machine features a single head capable of placing a full range of SMT parts, while also capable of placing large connectors, odd-shaped components, and advanced packaging types in an assembly line or as a stand-alone machine. After this successful installation, Imperial added a second line with the AM100 to satisfy their growing business needs.

Recently, as manufacturing and assembly needs grew domestically, Imperial had the need to add a high-volume line to their floor.

To assist Imperial in the decision-making process, Panasonic conducted an in-depth audit of Imperial's existing process. During the audit Panasonic prepared simulations of Imperial's high-volume production runs on their AM100 SMT line compared to the new WX SMT line. The simulation highlighted Panasonic Connect's WX, which can handle a large mix of components at nearly 2.5 times the speed of their AM100 lines. Additionally, Panasonic worked closely with Imperial's engineers and management staff to utilize the Connect WX's next generation offerings that can reduce production costs and inefficiencies.

The audit resulted in a significant upgrade to the current SMT AM100 production lines; including 2 new screen printers, 2 inline AOI systems, as well as camera and board handling upgrades.

A new, full high-speed production SMT WX production line was also added. This included 1 new screen printer, 1 inline AOI system, 1 SPI system, 1 convection oven as well as multiple conveyors and board handling equipment. The addition of this new line nearly doubled the capacity of Imperial's SMT production capabilities by supporting the advanced automation concept.

To take full advantage of the newest product features, Imperial migrated all three of their lines to PanaCIM™ Gen 2 manufacturing execution software. The PanaCIM™ Gen 2 software provides real time visual feedback to operators. It allows production to be able to react to a reel of parts, that are about to be exhausted, so they can prepare replenishment and



maintain output efficiencies. The software is flexible enough to allow supervisor and/or quality control to access the same real-time data and customize dashboards to monitor personalized KPI's. The data integrity and feedback with each machine in line provides a more robust and error free solution.

Finally, Imperial added changeover optimization software to assist in work order scheduling and reduced setups and changeovers, while elevating overall equipment effectiveness by adding PanaCIM's Production Monitoring and Dispatch module to better visualize operational awareness and status of all lines for all of Imperial's stakeholders through real-time production dashboards mounted over their production lines.

“ Panasonic Connect has been alongside us every step of the way as we have grown as a company, and we look forward to what the future holds for both of us. ”



RESULTS

The original Panasonic AM100 equipment enabled Imperial to thrive in the high mix-low volume environment leveraging the feeder capacity and flexibility of the platform.

After adding the new high-speed WX SMT line, Imperial was able to deliver any-mix/any-volume capability to their growing list of customers. The overall integration has allowed Imperial to increase production, reduce production cycle time and improve the flow of product through all their PCB assembly departments.

While full implementation of the upgrades and new lines have only been in place for a short period of time, Imperial has already seen strong results from the capital investments and solutions provided by Panasonic. Please see initial results below:

- Imperial has seen production output increase 129%, on average, for SMT board assemblies.
- Additionally, Imperial has started to see cycle time improvements of nearly 1.5x resulting in more seamless process flow.
- As Imperial continues to utilize all the capabilities of the PanaCIM software they are expecting additional improvements in their production process.

Learn more at na.panasonic.com/us/industries/manufacturing

