

## SMART INSERTER PLUS

### VALUE IN EVERY INSERTION

The Smart Inserter Plus brings cost-effective intelligence, ease of use and simplicity to back-end electronics assembly automation. It leverages a linear motor positioning system and a host of intelligent features to deliver accurate, high-speed insertion of axial, radial and other odd-form components. It supports a range of feeder types and features an active clinch and controlled insertion force.

The Smart Inserter Plus provides single-process efficiency to complement multi-process cells. Features include:

- Eight independent insertion heads with standard active clinch
- High-force & programmable insertion
- Four cameras utilizing AI & AOI vision algorithms
- Best-fit insertion algorithm
- CAD data import
- Independent pick & place sequences
- Portfolio of standard feeders; on-the-fly replenishment
- Board shuffle mode
- Automated tool changes

#### VIDEO

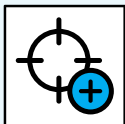


### BENEFITS & VALUE



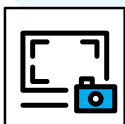
#### HIGH INSERTION QUALITY

Detect current changes, monitor insertion force to ensure quality



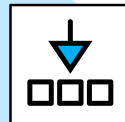
#### HIGH INSERTION ACCURACY

Best fit algorithm compensates for PCB positioning and component pin variations; Insertion rate **>99.5%**



#### FAST INSERTION RATE

Components are inspected and positioned simultaneously, shortening the cycle time; Optimal path algorithm



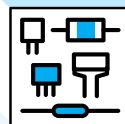
#### LOW REJECT RATE

AI and AOI algorithm enhance image, reduce background interference, improve pin positioning, and reduce reject rate to **<1%**



#### FAST NPI PROCESS

Offline programming optimizes the sequence of insertion heads and feeders to create streamlined products

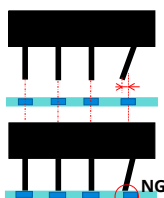


#### SUPPORT FOR A VARIETY OF COMPONENTS

Full range of reliable feeding solutions accommodate a variety of components and packaging

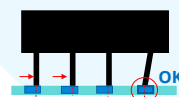
#### BEST-FIT ALGORITHM

##### TRADITIONAL INSERTER



Skewed pins = high reject rate

##### SMART INSERTER PLUS



Best-Fit algorithm increases the success rate of insertion to **>99.5%**

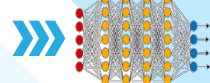
#### AI + AOI ALGORITHM

##### RAW NG IMAGE



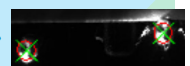
Traditional insertion machine considers this NG image as reject

##### THROUGH AI MODEL

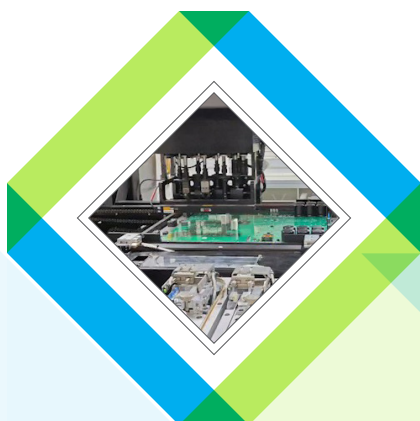


**78% reduction in reject rate**

##### AI + AOI ALGORITHM RESULTS



AI with AOI algorithm reduces background interference and precisely locates pins



### Smart Inserter Plus Specifications

<b>Positioning System</b>	Single-gantry linear motor
<b>Insertion Heads</b>	8 heads, independent Z
<b>Component Picking Method</b>	Pneumatic gripper, vacuum nozzle
<b>Cameras</b>	4 ULCs for components, 1 fiducial camera
<b>Feeder Inputs</b>	32 inputs
<b>Insertion Rate</b>	1.4 seconds/pc <sup>1</sup>
<b>Throughput</b>	2,570 cph
<b>Insertion Success Rate</b>	>99% <sup>2</sup>
<b>Insertion Accuracy</b>	±50µm
<b>Reject Rate</b>	<1% <sup>3</sup>
<b>PCB Dimensions (W x L)</b>	Minimum size: 100mm x 50mm Maximum size: 550mm x 500mm (standard), 550mm x 800mm (optional)
<b>PCB Thickness</b>	Bare board 0.8–3.0mm; Carrier ≤8mm
<b>Max Component Size<sup>4</sup></b>	diameter: 49mm; height: 40mm; weight: ≤200g
<b>Max Weight of PCB &amp; Carrier</b>	3kg standard, 8kg optional
<b>Max Insertion Force</b>	5kg

#### Notes:

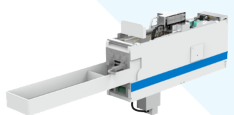
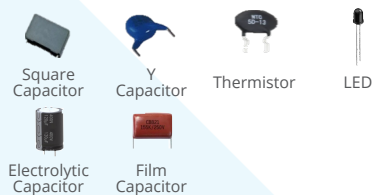
1. Using standard components and nozzles under factory conditions
2. PWB hole ≥ component PIN diameter 0.5mm
3. Exclusive of faulty components
4. Insertion range may be limited by head and clinch range

### Modular design. Independent control. Full range of feeders.

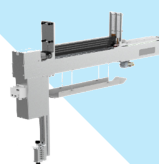
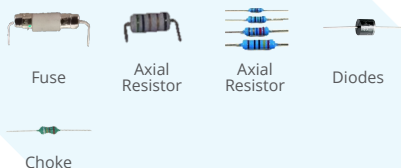
The Smart Inserter Plus supports a complete portfolio of component presentation options. Regardless of what components you're inserting or how they're packaged, we offer cost-effective feeders for your product mix.



**RADIAL TAPE FEEDER**



**AXIAL TAPE FEEDER**



**TUBE FEEDER**

