Universal Instruments

POLARIS®

Multi-Process Assembly Cell

Automation for
end-of-line and light
mechanical assembly

Polaris Multi-Process Assembly Cell delivers efficient automation of traditionally manual, back-end assembly processes to realize cost, quality, and throughput improvements. Polaris Multi-Process has the ability to perform multiple operations on a single cell by incorporating up to three quick-release, independent tool modules plus a vision inspection or guidance camera. Standard interfaces allow a wide range of tools to be added or removed upon completion of a project or in response to product changes. Use the Polaris Multi-Process Assembly Cell to automate:

- **Dispensing**
- **Vision**
- **Driving screws**
- **Pick and place**
- **Bar code reading**
- **Labeling**
- **Many other operations**

Dispensing

Application Types	To create a seal or gasket Passivation/potting (to protect and stabilize) Die and/or surface mount component attach Thermal conductivity
Methods	Single needle on/off with time/pressure dispense Pneumatic or motorized rod positive displacement pump Auger pump (especially good for filled materials)
Options	Height touch probe to overcome variations in product height Dual dispensing Dispensed needle calibration (position accuracy) Dispensed weight calibration (material dispense accuracy)

Vision

Application Types	Optical character verification (OCV) or recognition (OCR) Inspect dispensed materials for voids, gaps, presence, etc. Component or piece part inspection/correction prior to placement Product fiducial or pattern inspection/registration prior to placement
Methods	Fixed, upward-looking camera Downward-looking camera (fixed or as a tool module)
Options	Black and white, color, or UV inspection Z-axis movement

Driving Screws

Screwdriver Types	Pneumatic drive Servo drive
Methods	Vibratory bowl feeder or sword feeder Presented via a feed hose or track
Options	Torque control Angle control Height control Underside screwdriving

Pick and Place

Application Types	Mechanical piece parts and assemblies Covers or lids Labels Surface mount, through hole, or odd form components Electronic circuit boards and assemblies
Methods	Vacuum Gripper
Options	Assembly verification by impact detection Pneumatic or servo theta rotation Object seating (movement of object to ensure seated properly)

Bar Code Reading

Application Types	Bar code readability verification (1D or 2D matrix) Traceability of pallet, assembly, and/or piece parts (e.g., read each product code, match with pallet bar code, and send to FIS)
Methods	Reader as tool module on machine interface

Labeling

Application Types	Traceability (bar codes) Masking Branding/graphics Identification (e.g., rejected product) Sealing (e.g., for warranty purposes)
Methods	Label feed and apply Label print and apply (print-on-demand or preset graphic)
Options	Multiples of same label per machine Labels of different sizes or graphics per machine Optical character verification (OCV) or recognition (OCR)

X-Y Cartesian Gantry*

	X-Axis	Y-Axis
Travel	800mm (31.5")	550mm (21.7")
Repeatability	±0.01mm (±0.0004")	±0.01mm (±0.0004")
Velocity	1200mm/sec (47.2")	1200mm/sec (47.2")
Acceleration	1g (386.4"/sec^2)	1g (386.4"/sec^2)

*Specifications apply to the base positioning system without end-effector tooling.

Software

Microsoft® Windows NT®
Graphical User Interface

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