Universal Instruments

ADVANTIS³

targeted functionality

"Advantis 3 has raised our expectations of a midrange platform, enabling us to quote any job at any time."

targeted functionality

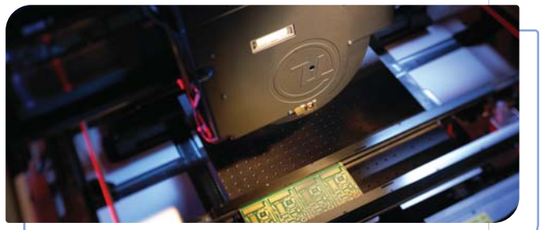
Looking to achieve high-end performance as a Tier II/Tier III OEM/CEM electronics manufacturer? Look no further than Universal Instruments' Advantis 3™ Platform.

Advantis 3 provides targeted functionality for value-driven performance that is truly unmatched for the demands of cost-sensitive markets. This next-generation platform re-defines the standards of mid-tier assembly solutions with value-minded incremental capacity, easy-to-use operation, and class-leading performance.

Scalable, incremental capacity

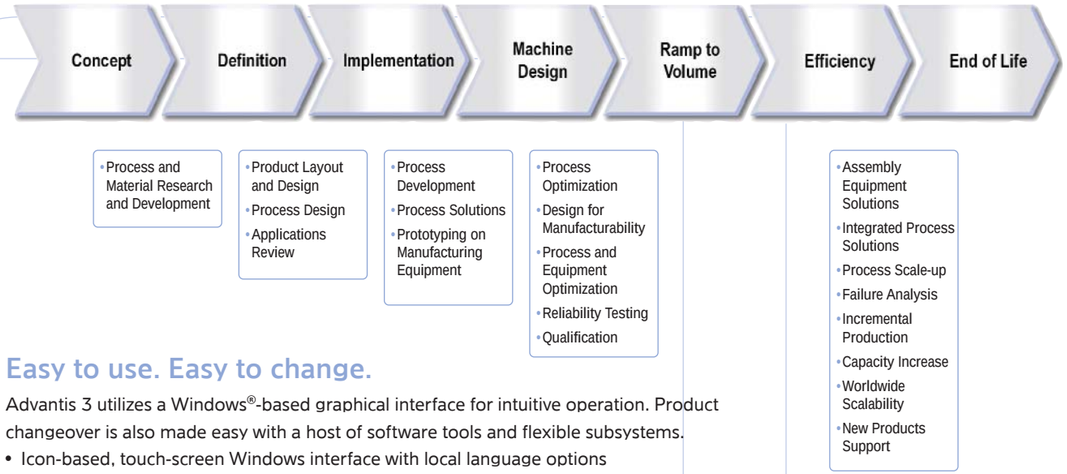
Advantis 3 offers incremental units of capacity with multiple head configuration options. Configure your manufacturing lines for the product you're building now and easily adapt to new products significant line or module reconfigurations. Need more output? Simply add spindles or modules for additional throughput or feeder capacity.

- Minimal entry price, – lower initial investment costs
- Targeted functionality – buy only what you need and upgrade later
- True flexibility – Easily reconifigured for changing requirements
- Investment protection – class-leading technologies for long usable life
- Lowest cost-of-ownership – robust technologies with minimal maintenance
- Scalable capacity – double CPH without changing heads or adding beams



get a quality product to market fast!

Universal Instruments delivers complete factory-wide process, manufacturing and support solutions from product concept throughout the entire product lifecycle. A technology partnership with Universal Instruments ensures you get a quality product to market quickly and efficiently.



Easy to use. Easy to change.

Advantis 3 utilizes a Windows®-based graphical interface for intuitive operation. Product changeover is also made easy with a host of software tools and flexible subsystems.

- Icon-based, touch-screen Windows interface with local language options
- Dynamic online help system
- Machine-side NPI software goes beyond new product introduction. It assists throughout production, accounting for complex process changes involving components, boards, placements, and fiducials to achieve a production-ready first pass yield
- Platform and line flexibility eliminating reconfiguration requirements
- Auto-recovery for common production issues

Class-leading Performance

Advantis 3 is powered by the most advanced technologies of any mid-tier assembly solution. These valuable tools will both energize and refine your manufacturing process. You'll be confident that you're prepared for your next product, no matter how complex.

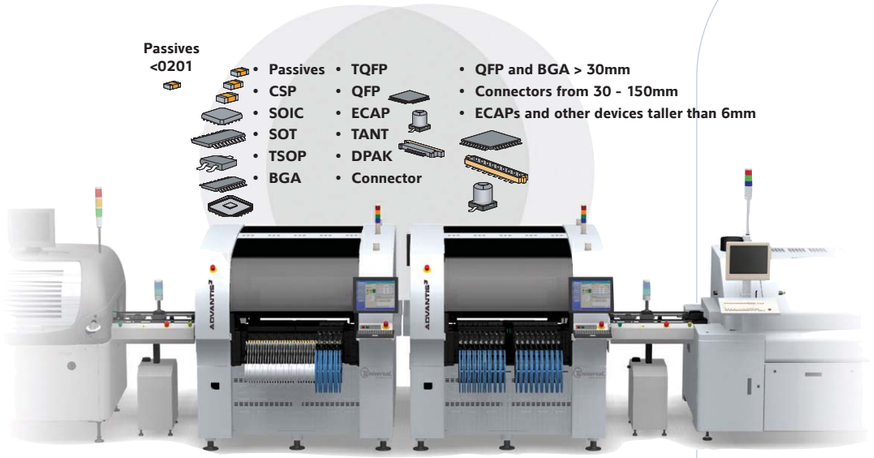
- Finest Pick PPM and final product yield
- Superior line balancing with no reconfiguring
- Patented VRM linear motor technology with closed-loop, direct drive positioning
- Patented Lightning head technology with 01005 - 30mm square component range and the industry's fastest tact time
- Patented Magellan® digital optics providing both wide field-of-view and high resolution on every component type
- Intelligent impact sensing, Auto XY pick update, and Auto Z update at pick and place

Flexible, scalable solutions for maximum versatility

Advantis 3 Platform solutions address any market segment with flexible line configurations built on a flexible platform foundation. Advantis 3 provides investment protection with the ability to efficiently change and grow to conquer current and future challenges.

Change the program, not the line

Advantis 3 solutions give you the flexibility to configure exactly the right line for your specific business requirements. An unrivaled component range ensures outstanding performance, even with a significant change in customer portfolio. Advantis lines don't require hardware reconfiguration to deal with new products, simply change the program and get back to high-performance production.



InLine 7 Head (150mm)

Lightning Head (30 x 30 x 6)

- Chip
- MELF
- Tant Cap
- SOIC
- TSOP
- DPAK
- QFP
- BGA
- PLCC
- CSP
- Electrolytic Cap
- Connectors
- CCGA
- Odd Form

Lightning Head - *Speed without Compromise*

Lightning takes the guess work out of configuring your factory for maximum flexibility and productivity. Lightning delivers the industry's fastest tact rate and an 01005 - 30mm square component range that is without comparison, allowing you to be proactive with the next product you're asked to build.

InLine7 Head - *The all-around performer*

The Advantis component range doesn't stop at Lightning's 30mm square maximum. The InLine7 Head quickly and accurately places components as small as 0201 up to 55mm square and 25mm tall with single field-of-view inspection. Gang pick up to seven components.

Targeted solutions for a range of applications

As a Tier II/Tier III or Consumer electronics manufacturer, you need a solution that is tailored to your production requirements with the ability to adapt within them. The Advantis 3 portfolio enables you to configure your lines to accel with the products you run and the way you run them.

Market challenges

- Adapt to every product
- Lowest capital investment
- Investment protection – future-proof machine
- Incremental capacity requirements
- Place all component types
- High Utilization

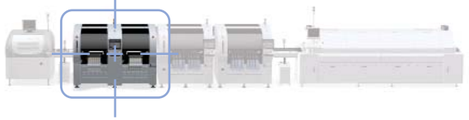
End products

Advantis 3 solves your challenges

- Monitor, diagnose, and auto-recover
- Fast NPI and product ramp up
- Scale on demand
- Excellent line balancing
- Superior odd-form capabilities
- Best first-pass yield

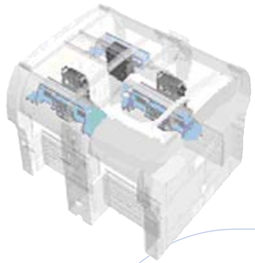
Advantis 3 AC-90T

Advantis 3 (triple-beam)



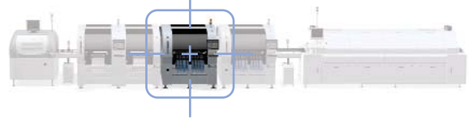
An ultra-high-speed small part placer delivering high-end performance for cost-sensitive markets

- Triple-beam, dual-drive overhead gantry system
- Three 30-spindle rotary Lightning placement heads
- On-the-head vision system



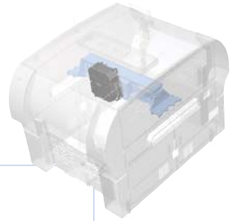
Advantis 3 AC-15S

Advantis 3 (single-beam)



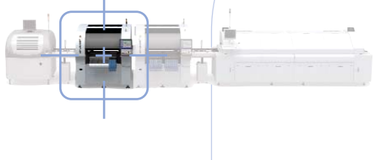
A scalable mid-speed solution for medium-volume environments. Upgradeable to AC-30S.

- Single-beam, dual-drive overhead gantry system
- One 15-spindle rotary Lightning placement head, upgradeable to 30 spindles
- On-the-head vision system



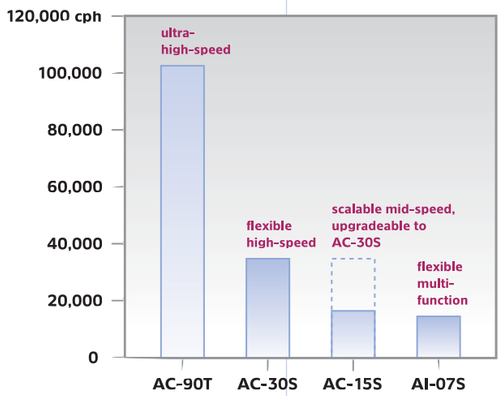
Advantis 3 AC-30S

Advantis 3 (single-beam)



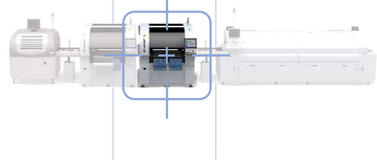
A flexible line booster solution or high-speed small part placer

- Single-beam, dual-drive overhead gantry system
- One 30-spindle rotary Lightning placement head
- On-the-head vision system



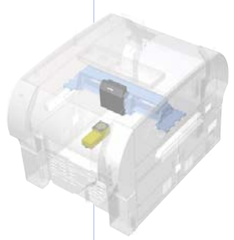
Advantis 3 AI-07S

Advantis 3 (single-beam)



A flexible single-machine solution or end-of-line multifunction/odd-form placer with mid-speed performance

- Single-beam, dual-drive overhead gantry system
- One 7-spindle Inline7 placement head
- Upward-looking vision system



SPECIFICATIONS		AC-90T	AC-30S	AC-15S	AI-07S
Placement Rate (cph (sec per comp))	Max	102,500 (0.035)	34,500 (0.104)	16,000 (0.225)	15,300 (0.235)
	1-Bd IPC	60,000 (0.060)	22,600 (0.159)	13,200 (0.273)	11,400 (0.316)
Accuracy (µm@ 1.33 Cpk/1.00 Cpk)	Chips	±60 / ±45			
	ICs	±60 / ±45			±45 / ±34
PCB Dimensions (mm("))	Max (WxLxH)	457 x 635 (18 x 25)	457 x 635[2] (18 x 25)	457 x 635[2] (18 x 25)	457 x 635[2] (18 x 25)
	Min (WxLxH)	50.8 x 50.8 x 0.508 (2 x 2 x 0.02)			
	Max Weight (kg (lbs))	2.72 (6.0)			
Component Range (mm ("))	Max (WxLxH)	30 x 30 x 6[1] (1.18 x 1.18 x 0.24)			150 x 150 x 25 (5.90 x 5.90 x 0.98)
	Min (WxLxH)	0.18 x 0.38 x 0.10 (0.007 x 0.015 x 0.004)			0.25 x 0.5 x 0.15 (0.01 x 0.02 x 0.006)
Machine Dimensions (mm("))	(LxDxH)	2372 x 2160 x 1930 (93.4 x 85.0 x 75.9)	1676 x 2248 x 1930 (66 x 88.5 x 75.9)	1676 x 2248 x 1930 (66 x 88.5 x 75.9)	1676 x 2248 x 1930
Machine Weight (kg/lbs)		3500 (7700)	3250 (7150)	3250 (7150)	
Feeder Types		tape, stackable matrix tray			

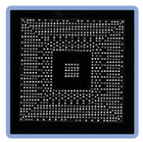
[1] *6mm nozzles required*
[2] *Optional Long Board Kit required*

Innovative technologies...

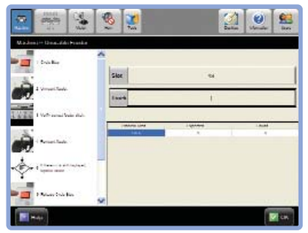
Universal Instruments' platform solutions feature innovative technologies for every step of your manufacturing process. AdVantis 3 takes advantage of best-in-class technologies and comprehensive software solutions work together to ensure maximum efficiency and productivity.


VRM Linear Motor
- High-accuracy (1µm) closed-loop positioning control supports current, converging and emerging technologies
- High acceleration – up to 2.5G
- Dual-drive architecture reduces settle times
- Thermally stable, non-magnetic
- Direct drive technology stands the test of time to maintain its accuracy indefinitely
- Self-correcting dual-drive control


Lightning Placement Head
- The industry's fastest placement head – 55ms duty cycle
- Single pick point eliminates gang-picking concerns and speed derates associated with in-line heads
- Dual on-the-head cameras – 0.8 and 2.6 mil/pix for 01005 – 30 x 30mm vision capability — chips, BGA/CSP, Melf, QFP, connectors, up to 6mm tall, on the same head
- 30 spindles amortizes travel time over more components
- Spindles incorporate high-accuracy theta drive

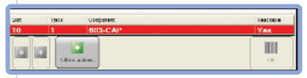
Magellan Digital Camera
- Exceptional flexibility for NPI through high-volume, high-throughput applications
- High resolution of 1024 x 1024 to facilitate small part feature recognition
- Large 55mm field-of-view minimizes multiple scans of large bumped/leaded devices
- Provides substantial throughput improvements for applications that typically require multiple FOVs
- Lighting calibration is performed on the machine, eliminating machine-to-machine lighting intensity variation



UPS+ Platform Software – *monitor, diagnose, and auto-recover*
- **Auto-spindle bypass:** Independent, intelligent spindles are automatically bypassed when thresholds are exceeded and product continues to run
- **Incorrect feeder pitch/width:** Verifies correct settings
- **Incorrect nozzle:** Identifies and locates incorrect nozzles
- **Feeder error recovery:** Displays location of exhausted feeder and designates whether validation is required
- **Incorrect component:** Identifies and locates incorrect components
- **Board transfer:** Graphically displays where in the platform or conveyor the error occurred and provides instructions to resolve the issue

Incorrect feeder pitch/width

Incorrect nozzle



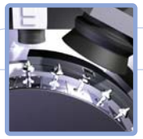
Feeder error recovery

... for **every step** of your **manufacturing** process

Base Frame
- Precision machined to within 1µm from corner to corner for extreme accuracy
- Backed by an industry-best warranty

Large Board Size Capability
- Up to W457mm x L635mm (18" x 25") to address any market or end product
- Board support for maximum yield under all circumstances

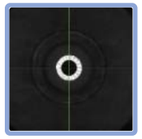
InLine7 Placement Head
- Provides high-speed IC and chip placement capability
- Gang pick up to 7 components
- Picks from trays, tape, tube and odd-form feeders



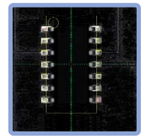
Lightning Dual On-the-Head Cameras
- Both 0.55 and 2.8 mil/pix cameras for 01005 – 30 x 30mm vision capability
- Chips, BGA/CSP, Melf, QFP, connectors, up to 6mm tall, on the same head

Intelligent Lightning Spindles
- Fast and accurate direct-drive theta
- Vacuum generated at spindle – fast reaction / low maint
- Self-ID intelligence
- Dry spindle bearing/no oil
- Automatic spindle bypass

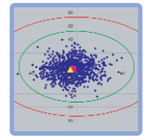
Single Pick Point
- Eliminates gang-picking concerns over variations among multiple feeders and packages
- 30 online spindles provide amortized travel time over more components



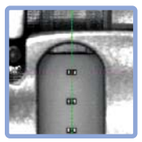
Quick and Easy Calibration
- Disconnect spindles/ calibrate in < five minutes
- Automatic nozzle centering, accuracy assured at negligible overhead
- Nozzle auto-calibration



NPI Software
- Scrap-free first article build
- Verifies the complete production process: board, feeders, fiducials, components, pre/post-place x, y and theta data



Real Closed-Loop Control
- X, Y and Z linear encoder feedback during pick/place
- Auto pick/Auto Z update automatically compensate for packaging variations
- 1µm encoders for superior accuracy and repeatability



Automatic Pick Update
- Automatically tunes feeder pick point based on vision results for optimal small part pick performance
- APU is enabled for all feeders

Touchdown Sense / Auto Z
- Compensates for varying pick heights
- Guarantees ideal placement force
- Improves throughput, pick ppm and yield, reduces scrap and nozzle wear

Auto Setup Validation
- Closed-loop validation of feeder locations during setup and changeover
- Provides security by stopping production until correct part is scanned

Feeder Bank Change Cart
- Perform entire bank changeovers in minutes
- Removable feeder bank kit transforms feeder banks into removable banks

Feeder Storage Cart
- Provides storage for tape, track and/or tray feeders in one convenient location
- Each cart holds up to 132 8mm single-lane feeders

Feeder Setup Cart
- Provides power and air for offline feeder setup/reload
- Cart design for easy mobility

Feeder Bank Storage Table
- Reduces changeover time with offline feeder setup and full bank exchange

Feeder Setup and Calibration Cart
- Uses a precision system to accurately align feeder pockets to the machine's pick point

Tape Cutter
- Automatically cuts off small pieces of reel tape and collects them in a bin for ease of disposal
- Accommodates two banks of feeders

Splicing Tools and Materials
- High-quality, field-tested splicing tools that improve machine utilization

Tape Scrap Bin
- A low-cost means of keeping the production floor clean by collecting the scrap tape

Nozzle Changer
- Large online capacity of up to 140 inputs

Versatile **component feeding** solutions

Universal offers the fullest complement of input types in the industry; from strip tape NPI and tube feeders to high-volume continuous-splice tape feeders, random access matrix tray feeding and odd-form feeders to support any manufacturing challenge.

Tape Feeders

High-performance Gold Plus

A family of feature-loaded, high-speed, continuous-splice tape feeders.

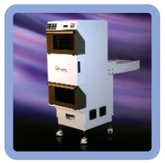
High-performance Gold Plus

- Single-lane
- 71 msec index speed (4mm index)
- 8-88mm tape widths, multi-pitch
- Allows up to 72 inputs/machine
- 0201-qualified - no need for dedicated 0201 feeders
- Continuous splice capability
- Precision locating features (8/12mm) for improved chip delivery performance
- Unique feeder ID and reel detection sensor, compatible with PSV
- Standard High Torque Mode for all 16 - 88mm
- Available 7" or 13" inch reel holder options
- Two-year warranty

High-performance Gold Plus 60

- Dual-lane
- 60 msec index speed (4mm index)
- 8mm tape width, multi-pitch
- Allows up to 144 inputs/machine

Tray Feeders



Direct Tray Feeder (DTF)

A random access matrix tray feeder for use when the demands are beyond that of a Stationary or Stackable Matrix Tray Feeder.

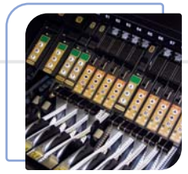
- Handle up to 40 JEDEC and non-standard vacuum formed matrix trays
- Operate in 3 modes: Exchange, Concurrent and Job
- Supports Platform Setup validation
- Reduce overall floor space requirements
- Experience no downtime associated with tray replenishment
- Ability to mount two units per platform

Strip Matrix Tray Feeder

- Ideal for NPI solutions
- Holds up to 5 strips
- Applicable for multiple strip components

Stationary Matrix Tray Feeder

- Single-tray single-part number tray feeder
- Supports and secures the trays for pickup
- Tray height is adjustable to compensate for variation
- Available in three sizes



Tube Feeders

Tube Feeder

- Multiple-input track feeder
- Supports and positions component tubes for component transport to the pick position

Multi-Tube Feeder

- Single-input feeder
- Automatically ejects empty tubes while continuing to pick components
- Can be manually loaded with full tubes during operation

Special Feeders

Odd Form Feeders

- A variety of solutions for components utilizing bowl, GPAX and other feeding devices

Strip Tape Feeders

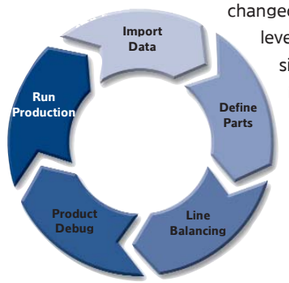
- Delivers components from short strips of 8/12mm tape
- Available in stationary matrix tray form with up to 10 inputs or in single-part number input
- Ideal for NPI or low-volume

Equipped to **excel** with **intelligent software**

Universal Instruments' Dimensions Software Suite features powerful NPI solutions to accelerate entry of your products into production, and turnkey line management tools that connect Advantis 3 into your overall manufacturing operation.

NPI Software

Fast, efficient introduction of new products into full production determines success with today's small batch sizes. Use the Dimensions suite of NPI software tools to easily import and verify design data, balance your lines, generate optimized programs, and create grouped feeder setups for minimized changeover time. You can also leverage Advantis' machine-side NPI tools at the line to fine-tune your processes.



- Import any kind of design data
- Generate balanced and optimized products
- Create grouped setups to minimize changeover
- Debug process problems online
- Achieve a production-ready first pass yield

Dimensions®

Programming & Optimization

- Part Data Management
- Line Balancing
- Optimization
- Grouping
- Family Group Setups
- Offline Component Scan

Machine-Side NPI

- Feeder Inspection
- Transfer Board
- Fiducial Inspection
- Pre-Placement Inspection
- Circuit/Offset Inspection
- Populate Board
- Post-Placement Inspection

Run Full Production

Dimensions Shop Floor Control Software

Dimensions shop floor control software helps you get more from your Advantis 3 investment. Gain visibility into your lines with Linechart, and use Line Manager to maximize your utilization and track and trace materials during production.

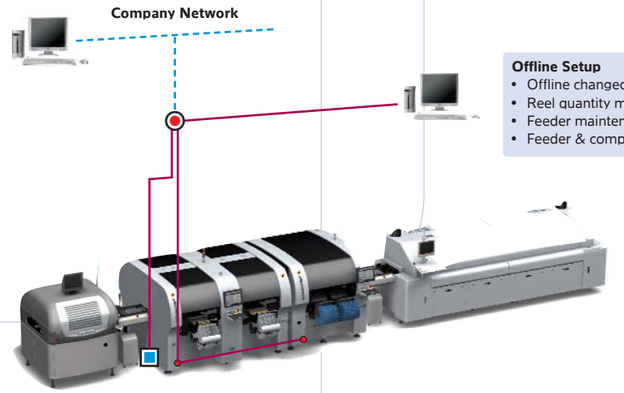
Dimensions®

Linechart

- Line-level reports
- Real-time production data
- Key performance indicators

Line Manager

- Automatic setup validation
- 'Feeder Low' warnings
- Consumption tracking
- Flexible setup
- Work order support



Offline Setup

- Offline changeover
- Reel quantity management
- Feeder maintenance
- Feeder & component tracking