Value-driven solutions for cost-sensitive markets

Redefining midrange platform capabilities

In a fast-paced market, electronics manufacturers are being pressed to optimize efficiency and productivity to meet aggressive market demands. For Tier II/Tier III OEMs/EMSs in a highly competitive landscape, this requires versatile, high-performance production solutions that can changeover quickly and seamlessly and deliver high-quality products while preserving razor-thin margins.

Universal Instruments’ AdvantisV™ is a powerful, cost-effective tool that gives the most aspiring manufacturers everything needed to stand above the rest. AdvantisV is a next-generation midrange platform that combines the best in technology and performance with a low entry price and unmatched scalability. AdvantisV gives you all the functionality you need today, with a growth path for tomorrow’s challenges. AdvantisV delivers affordable performance without compromise.

Versatility for any production environment

As an electronics manufacturer, you need a solution that is tailored to your production requirements with the ability to adapt within them. The AdvantisV portfolio enables you to configure your lines to excel with the products you run and the way you run them – all at the lowest possible cost, regardless of product mix.

Unmatched value
- Low cost of ownership
- Premium technologies
- Investment protection

Flexible, scalable foundation
- Simplified base configurations, easily integrated options
- Flexibility for a wide range of applications

Class-leading performance
- Exceptional and predictable output
- Highest accuracy and yield
- Advanced tools for streamlined NPI and changeovers
Sustained Profitability

Unmatched value

Low cost of ownership
• Low CAPEX/entry cost; buy only what you need
• Intelligent design with minimal maintenance requirements

Premium technologies
• Same technologies found on Universal’s flagship Fuzion Platform
• VRM linear motor: thermally stable, 1µm resolution, dual-drive with fast motion response and settling times
• Exclusive head technologies with high capacity and significant overlapping component ranges
• Intelligent feeders with closed-loop validation
• High-resolution digital line-scan cameras for superior component range, speed and FPY

Investment protection
• Easily adapts to future requirements
• Robust technologies for long usable life

Class-leading performance

Exceptional and predictable output
• Single and dual-beam variants with throughputs up to 66,500 cph per module
• Up to 7X the number of multifunction spindles for higher throughput, no bottlenecks
• Consistent output from prototyping to cost-effective volume production

Highest accuracy and yield
• 1µm positioning, 27µm system-level accuracy
• Single optimized pick-up point for highest yield
• Closed-loop controls [nozzle contamination check, dynamic height adjust, self-diagnostics]

Flexible, scalable foundation

Flexible, scalable foundation
Simplified base configurations, easily integrated options
• Minimal base configurations to grow with your requirements
• Large catalog of available licensed premium options

Flexibility for a wide range of applications
• Largest board size capability up to 1.3 meters long
• Component range from 01005–150mm square and up to 25mm tall
• No head changes or machine reconfigurations for new products
• Supports all feeder input types (strip, tape, tube, tray, bulk, odd-form)
• Multiple changeover schemes [bank exchange, family setups, feeder anywhere]

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Technologies for Performance, Flexibility & Yield

Base Frame

- Robust and stable foundation for accurate and repeatable performance
- Single welded structure precision machined to within 1µm from corner to corner for extreme accuracy

VRM Linear Motor Positioning System

- High-accuracy (1µm resolution), closed-loop positioning control supports current, converging and emerging technologies
- High acceleration – up to 25G
- Dual-drive control is self correcting and reduces settle times
- Thermally stable, non-magnetic
- Fewer moving parts for minimal maintenance and no adjustments
- 20-year lineage – thousands of proven VRM platforms in the field today
- Direct drive technology stands the test of time to maintain its accuracy indefinitely, backed by a five-year warranty

Magellan Digital Upward-Looking Camera

- Exceptional flexibility for NPI through high-volume, high-throughput applications
- High resolution of 1024 x 1024 pixels to facilitate small part feature recognition
- Large 55mm field-of-view improves throughput for applications that typically require multiple FOVs
- Complete feature-based recognition: full-lead/all-bump, missing-ball, orientation check, odd-form features
- Front, side, and on-axis lighting that can be used individually or in combination
- Lighting intensity is consistent across viewable area for faster, more accurate alignment and inspection

FZ™ Placement Heads

- Extensive component ranges that significantly overlap between heads, delivering superior line balancing and the ability to simply change the program, and not the line or heads, when changing products
- Robust design, low maintenance, industry-leading accuracy and performance

FZ7™ Placement Head
The FZ7 head quickly and accurately places components as small as 0201 up to 55mm square with single field-of-view inspection and up to 25mm tall.
- Precision accuracy (27µm @ Cpk>1)
- Advanced odd-form capability and insertion forces up to 5kg for press-fit or pin-in-paste applications
- Components up to 150mm with multiple fields of view

FZ30™ Placement Head
The FZ30 is the industry’s fastest, most accurate and most flexible high-speed placement head.

Maximized Performance
- Industry’s fastest tact time (55ms), 35,000 cph per head
- Industry’s most accurate high-speed placement head (34µm)
- Little down time, not reliant on gang picking, predictable throughputs on any mix

Uncompromising Flexibility
- Largest component range for a high-speed head (0005–30mm square): lead-less, leaded, bumped, odd-form with little need to skip spindles
- Full-lead/all-bump inspection, missing-ball inspection/orientation check

Highest Quality and Yields
- Vertical Part Sensor (VPS) validates part presence, orientation, and thickness; inspects nozzles and enables on-the-fly exchange of suspect nozzles
- Auto Pocket Teach and touchdown sense at both pick and place improves pick ppm, guarantees ideal placement force, and reduces nozzle wear
- Single pick points eliminates gang picking (multiple pick points) concerns
- Auto nozzle centering/contamination check/bypass assure sustained yields
Solutions for Any Market

NPI / All-in-One
Single-machine solution from prototyping to LVHM

Low-Voltage, High-Mix
Affordable, highly flexible, full-line solution (quote any job)

Medium-Voltage, Medium-Mix
Volume efficiency for more complex and changing environments

Unique Higher-Volume
Single or multi-machine solution for specialized applications

NPI–low-volume OEM/EMS, higher-complexity markets

Lowest entry price for single scalable machine solution

Full component range: 0201–150mm, micro BGA

Advanced NPI tool suite, auto component teach and edit on-the-fly for immediate first article

Direct CAD/Gerber import with BOM merge

NPI / All-in-One
Single-machine solution from prototyping to LVHM

Medium-Voltage EMS or OEM, White Goods, Military, Medical

20–35K line cph real throughput

Rapid changeover with full feeder bank exchange, family setups, offline setup and validation

[260] 8mm inputs, tray, feeder support

Large PCB size range: up to 508 x 813mm [20” x 32”]

Large component range: 01005–150mm, connectors, odd-form

Low-Volume, High-Mix
Affordable, highly flexible, full-line solution (quote any job)

Medium-Voltage EMS or OEM, Industrial, Set-top box, Telecom

35–50K line cph real throughput

[400] 8mm inputs, 40 random access tray inputs, feeder support

Large PCB size range: up to 508 x 813mm [20” x 32”]

Extensive component range overlap across all modules for easy balancing

Unique Higher-Volume
Single or multi-machine solution for specialized applications

Higher-Volume LED Lighting, Memory modules (RAM, USB)

30–40K line cph real throughput

Large PCB size range: up to 508 x 813mm [20” x 32”]

Extensive component range overlap across all modules for easy balancing

Medium Mix EMS or OEM, Industrial, Set-top box, Telecom

30–50K line cph real throughput

[400] 8mm inputs, 40 random access tray inputs, feeder support

Large PCB size range: up to 508 x 813mm [20” x 32”]

Extensive component range overlap across all modules for easy balancing

Versatile IC placement platform, perfect for special processes such as Pin-in-Paste and OFA

Single-beam, dual-drive overhead gantry system

One 7-spindle FZ7 high-speed multifunction placement head

Upward-looking vision system

Superb for high-mix NPI environments and large board applications. Also a high-volume line booster.

Single-beam, dual-drive overhead gantry system

One 30-spindle rotary FZ30 high-speed turret placement head with single pick point

On-the-head optics

Flexible, high-speed productivity for medium-volume environments. A powerful line booster or high-performance small part placer.

Dual-beam, dual-drive overhead gantry system

Two 30-spindle rotary FZ30 high-speed turret placement heads with single pick point

On-the-head optics

Model | Throughput (cph) | Accuracy (µm) | Max Board Size | Max Feeder Inputs (8mm) | Component Range (mm)
--- | --- | --- | --- | --- | ---
AdvantisV1-07 | 16,500 (Max) | ±38 (Chips) | 508 x 813mm / 20 x 32” (Set) | 128 (1 ULC) (0201) .25 x .5 x .15 (Min) | 150 square and up to 40 tall
AdvantisV1-30 | 35,000 (Max) | ±34 (Chips) | 508 x 1300mm / 20 x 52” (Opt) | 136 | 30 x 30 x 5 (Max)
AdvantisV2-60 | 66,500 (Max) | ±34 (Chips) | 508 x 1300mm / 20 x 52” (Opt) | 136 | 30 x 30 x 5 (Max)
AdvantisV Platforms support the widest variety 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 automated assembly challenge.

High-Performance Tape Feeders

- Odd-form feeders to support any automated assembly challenge.
- Continuous-splice tape feeders, random access matrix tray feeding, and industry; from strip tape NPI and tube feeders to high-volume

AdvantisV Options Matrix

<table>
<thead>
<tr>
<th>Feature</th>
<th>AdvantisV1-07</th>
<th>AdvantisV1-30</th>
<th>AdvantisV2-60</th>
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Random-Access Tray Feeder

- Direct Tray Feeder (DTF)
- Components picked directly from tray (supports odd-form)
- JEDEC or non-standard vacuum formed matrix trays
- Components picked directly from tray (supports odd-form)
- Components picked directly from tray (supports odd-form)

Stationary Matrix Tray Feeder

- Single tray, single part number tray feeder
- Adjustable tray height
- SNA Stockable Matrix Tray Feeder
- Stockable alternative for higher volumes of one part number

Specialty Feeders

- NPI Strip Tape Feeders
- Single-lane/single-slot strip tape feeders
- Multi-lane, multi-slot, matrix tray-style
- Delivers components from short strips of 8mm or 12mm tape
- Ideal for NPI or low-volume

- Tube Feeders
- Adjustable track, multi-input track, single-input multi-lane

- Odd-Form / Automation Feeders
- Stoval, CPVX, label and other feeding solutions