UniversaL
Instruments

UniversaL
Instruments

GENERATION 88HT

the enduring standard

for through-hole automation

Generation 88HT

the enduring standard for
Through-Hole Automation

Through-hole technology remains vital in electronics manufacturing. Refined through decades of experience, Universal Instruments' through-hole lineup continues to stay one step ahead of the growing demands of the industry.

The next step in Universal's evolution is the Generation 88HT series, building off the highly successful Generation 88 series with improvements yielding higher throughput, improved reliability and increased capability. These enhancements are also available as an upgrade package to preserve Universal's platform philosophy and provide the end user with the best-in-class investment protection. Universal continues to ensure its solutions will meet the needs of today and into the future.

A heritage of reliability

Robust equipment solutions that run with maximum performance and minimal down-time are critical in getting the most from your manufacturing resources. Generation 88HT was designed for rock-solid reliability to lower cost of ownership and ensure your time is spent building product and adding to your bottom line.

- RoHS wear-resistant tooling
- Axial feeder technology that eliminates the need for lubrication
- Radial feeder technology that eliminates jamming

Easy to use

Generation 88HT machines are simply the easiest to use, providing the best possible operator experience and lessening the learning curve. Simple setup and operation with intuitive controls minimizes operator training.

- Graphical user interface
- Standard PC accessories include network connectivity, USB ports and CD-ROM
- Optional offline programming software
- Optional touch-screen interface

Value-driven evolution

Easy to use and easy to maintain with higher throughput and reliability, today's Generation 88HT family delivers real speed, stability and cost advantages on your shop floor.

Throughput enhancements
- X / Y Table speed increase – 445mm to 685mm/second
- 0.5 second improvement in board handling times
- Faster Auto-repair – up to 50% improvement over Generation 88
- Operator-free Missing Part Auto-repair

Capability enhancements
- Quad Span Radial offerings
- Tall Part Kits available for larger radial components
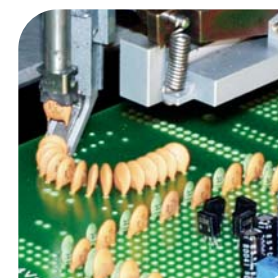- Adjustable radial clinch height for sensitive component requirements

Ease-of-use enhancements
- Optional touch-screen interface
- Management data automatically exports to host system

Flexible performance

Choose from several machine configurations to exactly match your application requirements. From low-cost manual-load with zero board transfer time, to modular automatic board handling options including an optional CE-compliant automatic-load machine.

Radial tooling
- Single Span 2.5mm for high-density applications
- Dual Span 2.5/5.0mm for optimal combination of density and capability
- Triple Span 2.5/5.0/7.5mm for high capability
- Quad Span 2.5/5.0/7.5/10mm for ultra-high capability

Radial sequencers
- Small 20-station sequencer – small applications, limited floor space
- Up to 100-station sequencers – large applications, quick changeovers

Axial tooling
- High-density 5mm tooling – wire diameters 0.45 to 0.8mm
- High-reliability 7.62mm tooling – wire diameters 0.45 to 0.8mm
- Large-lead 7.62mm tooling – wire diameters 0.6 to 1.0mm

Axial sequencers
- Small 20-station sequencer – small applications, limited floor space
- Up to 220-station sequencers – large applications, quick changeovers

The green machine

Generation 88HT through-hole machines are the most economical and environmentally friendly gear available today, continuing to lower operating costs.

- 5% less power consumption than Generation88
- 50% less electricity than alternative solutions
- 8% less pneumatic than alternative solutions
- True zero-scrap jumper wire insertion on the Jumper Wire 88 inserter

the **ideal solution**
for **any market**

LED Signage / LED Illumination
Radial 88HT
- 20k cph real throughput
- Highest-density dedicated 2.5mm Single Span tooling
- Inward / outward clinch choices
- V-groove inward clinch technology eliminates "tiling", reduces LED twist
- Alternate Feeder enables non-stop operation
- Component replenishment without machine stoppage
- Manual board handling option allows up to 800mm x 800mm boards with park steps

Power Conversion
Radial 88HT
- 17k cph real throughput
- No derate for larger components
- Triple Span 2.5/5.0/7.5mm for high capability
- Quad Span 2.5/5.0/7.5/10mm for ultra-high capability
- Alternate component location on guide jaw for density improvement (Quad Span)
- Optional Tall Part Kit
- Alternate Feeder capability
- Component replenishment without machine stoppage
- 12.7 and 15mm tape inputs and single, dual, triple-pitch
VCD 88HT Axial
- 22k cph real throughput
- Optional Jumper Wire dispenser
- High-density 5mm tooling
- High-power Large-lead 7.62mm tooling
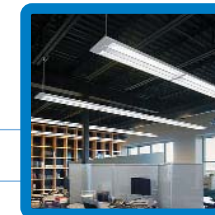- Small 20-station sequencer – small applications, minimized floor space
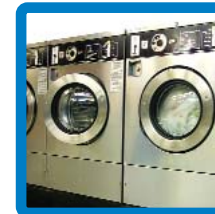
Appliance (White Goods)
Radial 88HT
- 17k cph real throughput
- No derate for larger components
- Triple Span 2.5/5.0/7.5mm for high capability
- Quad Span 2.5/5.0/7.5/10mm for ultra-high capability
- 360-degree radial component placement
- Small 40-station sequencer – quick changeover, minimized floor space
- Alternate Feeder capability
- Component replenishment without machine stoppage
- Adjustable radial clinch height for sensitive component requirements – high-and-tight for typical components (tact switches, connectors, other radials), low-and-loose for sensitive components (LEDs and sensitive capacitors)
VCD 88HT Axial
- 22k cph real throughput
- Optional Jumper Wire dispenser
- High-density 5mm tooling
- Small 40-station sequencer – quick changeover, minimized floor space

Compact Fluorescents (CFLs) and Ballasts
Radial 88HT
- 17k cph real throughput
- No derate for larger components
- Triple Span 2.5/5.0/7.5mm for high capability
- 360-degree radial component placement
- Small 20-station sequencer – quick changeover, minimized floor space
- Programmable clinch height by component – avoid bottom-side SMT
- Alternate Feeder enables non-stop operation
- Component replenishment without machine stoppage
- 12.7 and 15mm tape inputs and single, dual, triple-pitch
VCD 88HT Axial
- 22k cph real throughput
- Optional Jumper Wire dispenser
- High-density 5mm tooling
- High-power Large-lead 7.62mm Tooling
- Small 20-station sequencer – duplicate feeder capacity, minimized floor space
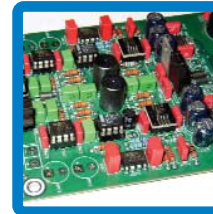
High-mix Environment
Radial 88HT
- 15k cph real throughput
- 360-degree radial component placement
- Single configurations, multiple changeover options in under 5 minutes– Triple Span 2.5/5.0/7.5mm, Dual Span 2.5/5.0mm and Single Span 2.5mm
- 100-station sequencer for a wide range of components addressing multiple products
- Component Verifier – measures each component, ensures accurate setup
VCD 88HT Axial
- 20k cph real throughput
- Optional Jumper Wire dispenser
- High-density 5mm tooling
- High-power Large-lead 7.62mm tooling
- 140-station sequencer for a wide range of components addressing multiple products
- Component Verifier – measures each component, ensures accurate setup
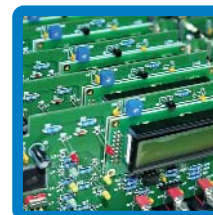
Radial 88HT

Flexible Radial sequencer / inserter for high productivity

- 22,000 CPH
- Highest reliability in the industry (300 ppm)
- Component replenishment without machine stoppage
- Manual Load or Automatic PCB Load/Unload
- Configurable sequencer (In-Line or Straight-Back)
- Multiple clinch options
  - N (Standard, Long, Short-lead)
  - Inward (for high-density applications)
- Component Verifier
- Simple-to-use operator environment:
  - Graphical user interface
  - Network connectivity, USB ports and CD-ROM
  - Optional touch-screen interface
  - Optional offline programming software
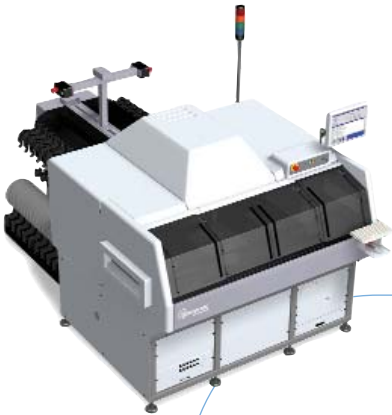
NEW for Radial 88HT
- Higher throughput – faster X/Y table, operator-free Missing Part Auto-repair
- Bad Clip Bypass
- Adjustable radial clinch height for sensitive component requirements
- Tall Part Kits available for larger radial components
- Quad Span capability

Green Machine
The Radial 88HT is the most economical radial insertion machine available with the lowest utility costs for electrical and pneumatic requirements.
- 5% less power consumption than Generation88
- 50% less electricity and 8% less pneumatic than alternative solutions

Component Verifier
Allows for the on-line verification of value and polarity of the components to be inserted. This reduces the risk of inserting defective, out-of-sequence or incorrectly oriented components.

Radial Head Tooling Options
Tooling to accommodate a variety of applications – field reconfigurable.
- Single Span 2.5mm
- Dual Span 2.5/5.0mm
- Triple Span 2.5/5.0/7.5mm
- Quad Span 2.5/5.0/7.5/10.0mm

360° Insertion Angle
Insertion heads are servo-driven for precise and rapid component insertion. The insertion tooling may be rotated from 0° to 360° in 1° increments.

Sequencer Configuration Options
Available in-line or straight-back sequencer configurations to accommodate a variety of factory layouts. Expandable from 20 stations up to 100 stations in 20-station increments.

Component Feeding
Sequencer feeds components to machine from reels or ammo packs. Generation 88HT features new jam-resistant designs, alternate feeder capability and double-index feeders for higher speed and increased throughput.

Board Handling Options
Machines are available with either manual-load or automatic PCB handling configurations, including full magazine-to-magazine loader/unloader.

Odd-form Component Capability
Automate non-traditional odd-form components in tape, including LEDs, terminals, connectors, fuse holders, power resistors and eyelets. Improve product quality and output per floor space, while reducing associated labor costs.

Servo-Driven Axis
The Radial 88HT utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements. The Radial 88HT increases table move speed 60% over Radial 88.

RADIAL 88HT SPECIFICATIONS

|		
Cycle Rate	Max	22,000 cph (0.16 sec. per insertion)
Lead Spans	Single Span	2.5mm
	Dual Span	2.5/5.0mm
	Triple Span	2.5/5.0/7.5mm
	Quad Span	2.5/5.0/7.5/10.0mm
Reliability	Single/Dual Span	300 ppm or better
	Triple/Quad Span	400 ppm or better
Intrinsic Availability		95% Intrinsic Availability
Insertion Capability		360° in 1° increments
Component Types	Standard and Odd Form	Capacitors (electrolytic, ceramic, box, and film), transistors, hairpin resistors, diodes, SIPs, LEDs, connectors, tact switches, coils, potentiometers, fuse clips, lamps, fuses, terminals, connectors
Component Specs	Maximum Size (LxDxH)	13.0 x 13.0 x 23.0mm (0.512 x 0.512 x .906")
	Tape Pitch	12.7mm (0.5") and 15.0mm (0.6")
	Component Replenishment	Without stopping production
Options	Board Handling	Manual or Automatic PCB load/unload
	Sequencer Size	Up to 100 inputs (in 20 station increments)
	Sequencer Configuration	In-line or Straight-back
	Clinch Types	N or Inward
	Component Verification	Component Verifier ensures operator accuracy of component loading
	Networking	Ethernet, TCP/IP
	Touch-screen Interface	
PCB Specifications		
Automated Bd Handling	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	2.5 seconds
Manual Bd Handling	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
	Length x Width (maximum)	600 x 600mm (23.6 x 23.6") with Park Step
	Insertable Area	508 x 470mm (20 x 18.5")
	PCB Transfer Time	0 seconds (with 2-window board-holding fixture)

Universal Instruments

VCD 88HT

High-performance Axial sequencer / inserter for demanding production

- 26,000 CPH
- Highest "real" throughput Axial sequencer/inserter
- Highest reliability in the industry (200 ppm)
- Component replenishment without machine stoppage
- Expandable from 20 inputs up to 220 inputs
- Manual Load or Automatic PCB Load/Unload
- Component Verifier
- Simple-to-use operator environment:
  - Graphical user interface
  - Network connectivity, USB ports and CD-ROM
  - Optional touch-screen interface
  - Optional offline programming software
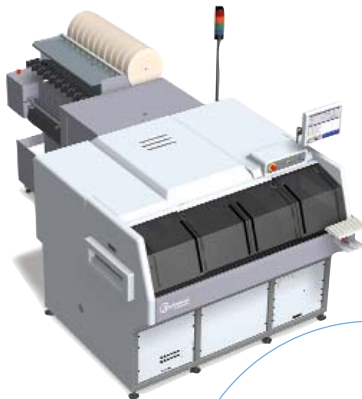
Expandable Sequencer
Expandable from 20 stations up to 220 stations in 20-station increments.
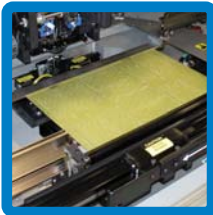
Board Handling Options
Machines are available with either manual-load or automatic PCB handling configurations. Manual load delivers near-zero board transfer time for maximum throughput.
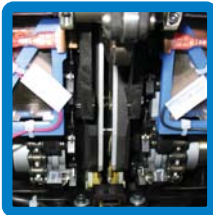
Component Feeding
Sequencer feeds components to machine from reels, ammo packs or jumper wire spools. Component replenishment without machine stoppage.

Axial Head Tooling Options
Tooling to accommodate a variety of applications – field reconfigurable.
- High-density 5mm
- High-reliability 7.62mm
- Large-lead 7.62mm

Component Verifier
Allows for the on-line verification of value and polarity of the components to be inserted. This reduces the risk of inserting defective, out-of-sequence or incorrectly oriented components.

Low-Maintenance Lead Screw on Head and Clinch
The Teflon-coated insertion head and clinch lead screws are virtually maintenance free, requiring very little attention over the machine life cycle.
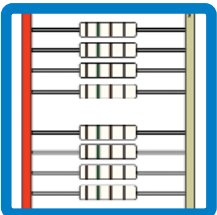
Optical Re-fire Component Sense
The optical re-fire circuit in the dispensing head senses a missing component from the input tape and re-fires the dispensing head index mechanism to bring a component into position.

Jumper Wire Station
The VCD/Sequencer allows for up to four jumper wire stations that utilize a continuous wire input spool. Dispensing jumper wire in this manner is more cost-effective than utilizing pre-packaged jumper wire reels.

Servo-Driven Axis
The VCD/Sequencer utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements.

Multi-component Sense
This new feature detects double-drop components, ensuring the best outgoing board quality.

VCD 88HT SPECIFICATIONS
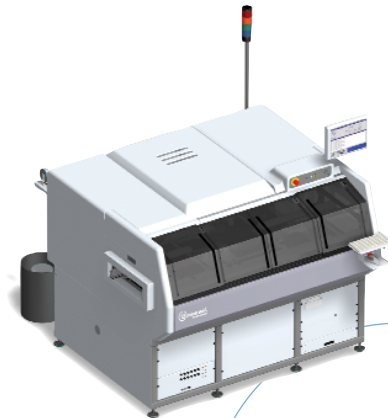
|		
Cycle Rate	Max	26,000 cph (0.14 sec. per insertion)
Reliability		200 ppm or better
Intrinsic Availability		95% Intrinsic Availability
Component Types		Capacitors, resistors, diodes, jumper wire, etc.
Component Handling		Handles Class I and Class II components
	Pitch	5.08mm (0.200") or 10.16mm (0.400")
	Component Replenishment	Without stopping production
Tooling		
High-reliability 7.62mm	Hole Span	7.62mm (0.300") min – 24.13mm (0.950") max
	Component Body Diameter	Wire lead diameter (min) – 10.69mm (0.420") minus 2 times board thickness (max)
	Lead Wire Diameter	0.38mm (0.015") min – 0.81mm (0.032") max
High-density 5mm	Hole Span	5.00mm (0.197") min – 21.59mm (0.850") max
	Component Body Diameter	Wire lead diameter (min) – 11.68mm (0.460") minus 2 times board thickness (max) *(At 5mm span, max component body diameter is 2.29mm (0.090"))*
	Lead Wire Diameter	0.38mm (0.015") min – 0.81mm (0.032") max
Large-lead 7.62mm	Hole Span	7.62mm (0.300") min – 24.13mm (0.950") max
	Component Body Diameter	Wire lead diameter (min) – 10.69mm (0.420") minus 2 times board thickness (max)
	Lead Wire Diameter	0.38mm (0.015") min – 0.81mm (0.032") max
Options	Board Handling	Manual or Automatic PCB load/unload
	Sequencer Size	Up to 220 inputs (in 20 station increments)
	Insertion Tooling	Standard 7.62mm, High-density 5mm, Large-lead 7.62mm
	Jumper Wire	Bulk Jumper Wire Dispenser System
	Component Verification	Component Verifier ensures operator accuracy of component loading
	Networking	Ethernet, TCP/IP
	Touch-screen Interface	
PCB Specifications		
Automated Bd Handling	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	2.5 seconds
Manual Bd Handling	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
	Length x Width (maximum)	600 x 600mm (23.6 x 23.6") with Park Step
	Insertable Area	508 x 470mm (20 x 18.5")
	PCB Transfer Time	0 seconds (with 2-window board-holding fixture)

Single-Head Jumper Wire 88

High-Reliability Jumper Wire inserter with zero waste

- 33,000 CPH
- Zero Scrap – zero scrap leads
- Highest reliability in the industry (75 ppm)
- Programmable clinch angles 25° to 75° from vertical
- Manual Load or Automatic PCB Load/Unload
- Simple-to-use operator environment
- 5 to 33mm spans

Servo-Driven Wire Feeding
The servo-driven wire feed delivers precise feed lengths into the insertion head to eliminate scrap.

Servo-Driven Axis
The SH JW 8HS utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements.

Wipe Clinch
The wipe-only, servo-controlled clinch offers programmable clinch angles from 25° to 75° off the board.

Low-Maintenance Lead Screw on Head and Clinch
The Teflon-coated insertion head and clinch lead screws are virtually maintenance free, requiring very little attention over the machine life cycle.

Zero Scrap
The Jumper Wire 88 utilizes a precise, servo-driven wire feed mechanism to feed the exact length of wire required for insertion and clinching in the board without any scrap leads.
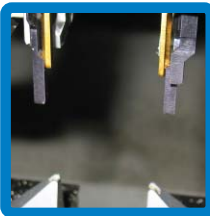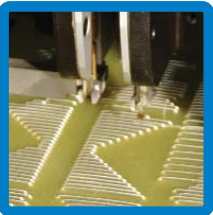
Long Tool Life
Robust tooling endures an extensive life span of approximately 10M - 15M insertion cycles, depending on the material composition of the wire being utilized.

platform philosophy delivering
lasting **investment protection**

Universal's platform philosophy helps you maintain your competitive advantage with incremental software, hardware and infrastructure upgrades that bring your insertion machines to highest level of performance and reliability at a fraction of the cost of purchasing new machines.

JUMPER WIRE 88 SPECIFICATIONS		
Cycle Rate	Max	33,000cph (0.109 sec. per insertion)
Reliability		75 ppm or better
Features		Zero-scrap Jumper Wire leads
Intrinsic Availability		95% Intrinsic Availability
Component Specs	Input Wire Diameter	0.51mm (0.020") to 0.81mm (0.032") tin-coated copper wire [0.6mm (0.024") is recommended]
	Input Wire Packaging	Preferred package is a drum that measures up to 405mm (16") high by 350mm (13.8") diameter, which may be placed on the floor next to the machine
	Hole Span	5.00mm (0.197") min to 33.00mm (1.300") max
Options	Board Handling	Manual or Automatic PCB load/unload
	Networking	Ethernet, TCP/IP
PCB Specifications		
Automated Bd Handling	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	2.5 seconds
Manual Bd Handling	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
	Length x Width (maximum)	600 x 600mm (23.6 x 23.6") with Park Step
	Insertable Area	508 x 470mm (20 x 18.5")
	PCB Transfer Time	0 seconds (with 2-window board-holding fixture)

Performance / Time

Cost-effective Upgrade Kits — **Universal Radial Future**

Cost-effective Upgrade Kits — **Universal Radial 88HT**

Cost-effective Upgrade Kits — **Universal Radial 88**

Cost-effective Upgrade Kits — **Universal Radial 8XT**