

Genesis

Flexibility Fast



Universal Instruments

defining the future

Manufacturing processes have never been more efficient than today. Yet the need for robustness is greater and business challenges tougher than ever: aggressively pursue new opportunities; accelerate New Product Introduction; customize cost-effectively; deliver meaningful cost down; uphold brand values. Above all, sustain growth and deliver shareholder value on razor thin margins.

This new age demands a focused response: major on core competencies, streamline, seek affordable technologies, optimize, innovate. Cut out the guesswork and achieve the objective.

Team with specialists you can trust to deliver the best. Fast.

“Through our network of technical centers, sales support offices, and parts distribution hubs, combined with increasingly sophisticated web-based support mechanisms, we connect with our customers throughout the world.”

A global business

As the global electronics assembly industry has burgeoned, we have tailored our infrastructure to maximize cultural as well as logistical closeness to our customers.

Our machine design and production facilities in Binghamton, USA and Shekou, China are home to dynamic engineers and managers, selected for their skills, energy and commitment. Our software development expertise extends to the Indian subcontinent. And we are the first to implement standardized pricing around the world. We build in global know-how.



Innovation

Since the beginning, we have invested continuously and intelligently to research and develop processes, equipment, systems and software to bring electronic assembly to its current pinnacle of sophistication.

An unyielding pursuit of technology advancement has led to over 180 patents and numerous industry awards. We set the highest possible standards for ourselves in all our technology and service enterprises, which make our achievements better for you. Many of our innovations have become global industry benchmarks; raising standards and driving our platform concept for flexible fine-pitch surface mount assembly to clear market leadership.

Our commitment to innovation takes many forms. We continue to develop high quality, automated platforms for electronic assembly, semiconductor packaging, and light mechanical processes. The revolutionary Lightning™ head re-defines throughput for all-platform Optima Plus lines. Our SMT laboratories on three continents deliver technology excellence to support next generation packages and processes. And the MyUniversal web portal allows customers to access and tailor an abundance of valuable online resources.

But advanced tools are just a part of our portfolio of services for the 21st century.



Affordable technology

Our experience in optimizing assembly processes, history of integrating full assembly lines and the industry's broadest product range affords us the finest expertise to tailor Optima Plus solutions to not only meet your productivity requirements but also your budget. No one is as uniquely qualified to determine best-in-class equipment from printer to oven and on to end-of-line assembly. We configure and commission lines expressly to deliver Universal Instruments quality at the keenest price and lowest cost of ownership.



Trust in our experience

Universal Instruments has driven manufacturing automation forward since 1919, when we were first incorporated in New York State, USA. And when high performance computing went commercial in the 1950s, our expertise in production automation helped create the high-tech sector as we know it.

Today, there are more than 17,000 Universal Instruments machines in action at electronic manufacturing sites in over 60 countries worldwide. And the skills and experience of our dedicated staff around the world add value that is impossible to match.

As part of the multi-billion dollar Dover Corporation, we are backed by a committed and secure industry-player. Our goal is to provide equipment and services that enable our customers to build electronics that are affordable for everyone. You can trust Universal Instruments to deliver high value throughout the long term.

OPTIMA *plus*

one simple solution

for total productivity

Universal Instruments' commitment is to understand and support your business - offering the best in surface mount assembly equipment is just the start.

“*Optima Plus is a simple yet comprehensive solution that integrates Universal's productivity tools to minimize cost, while maximizing throughput, yield, and profit.*”

Optima Plus, Universal's unique total productivity solution, embodies our philosophy of delivering low risk business solutions for your manufacturing needs, both today and tomorrow. It's Universal's way of providing direct access to the skills of our people and the capability of our technology. We've developed Optima Plus because we understand that what's important to you is maximizing production yields while raising asset and factory real estate utilization, and lowering operational costs. To achieve that, Optima Plus minimizes complexity, makes operation simpler and prepares you for tomorrow's technology.

Optima is best-in-class equipment for any manufacturing environment and line-level software to maximize utilization and operational efficiency.

Plus is an industry-leading services partnership and extensive technology expertise.

Together, Optima Plus combines to deliver the performance benefits of a best-in-class line configuration with the commercial advantages of a rapid buying cycle and easy ownership that comes from working with a single capital equipment partner.



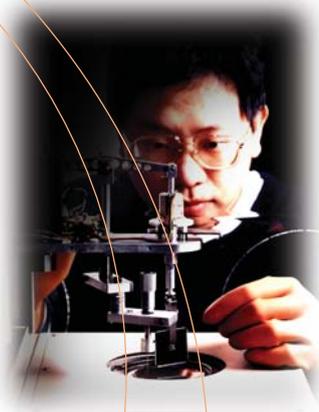


Affordable technology has never been easier to acquire.

At Universal Instruments, we are taking the lead in implementing cost down initiatives to reduce manufacturing overheads and passing the dividends on to our customers. With a design focus on cost drivers, global supply chain resources and localized manufacturing, we have set new standards of value expectation across the industry with Optima Plus.

Whether your requirement is fast changeover and prototyping, cost-effective mass production, or maximum throughput, Optima Plus will precisely meet your specific productivity, yield and budget specifications. It offers total flexibility while delivering optimum productivity. And optimized productivity maximizes profitability.

To meet demanding productivity targets and deliver real value, electronics assembly lines comprise sophisticated equipment sets. But sophisticated doesn't have to mean complicated. Part of our commitment to affordability is manifest in minimizing the complexity of our lines and systems. We continually strive to make them fast to learn and easy to operate. And as the backbone of the Optima Plus solution, it's our Dimensions Line Level Software that makes this possible. Dimensions Line Control Box optimizes line balancing and process control to dramatically simplify set up, product changeover and provide traceability data. Dimensions Line Programming Box processes offline design and manufacturing data to automate initial line set-up for new products.



Optima Plus only uses best-in-class assembly systems, priced to be affordable for all our customers. And there's no need to compromise with lower specification equipment because premier machines from the leader in electronics assembly are within everyone's reach. That's how we deliver on our promise of the highest quality, maximum placement rate, fastest changeover times, superior software, and most affordable pricing. And that's what makes the difference.

When you buy Optima Plus, you invest in Universal's unwavering commitment to your future. Choosing one simple solution for your production just became the easiest business decision you'll ever make.

The **Ultimate** in Modular **Performance**

Universal Instruments' platform concept has always succeeded in eliminating the restrictions imposed by conventional placement machines. That is what made Universal's GSM® Platform the industry's single most successful component placement system. Now we've taken the GSM to the next level.

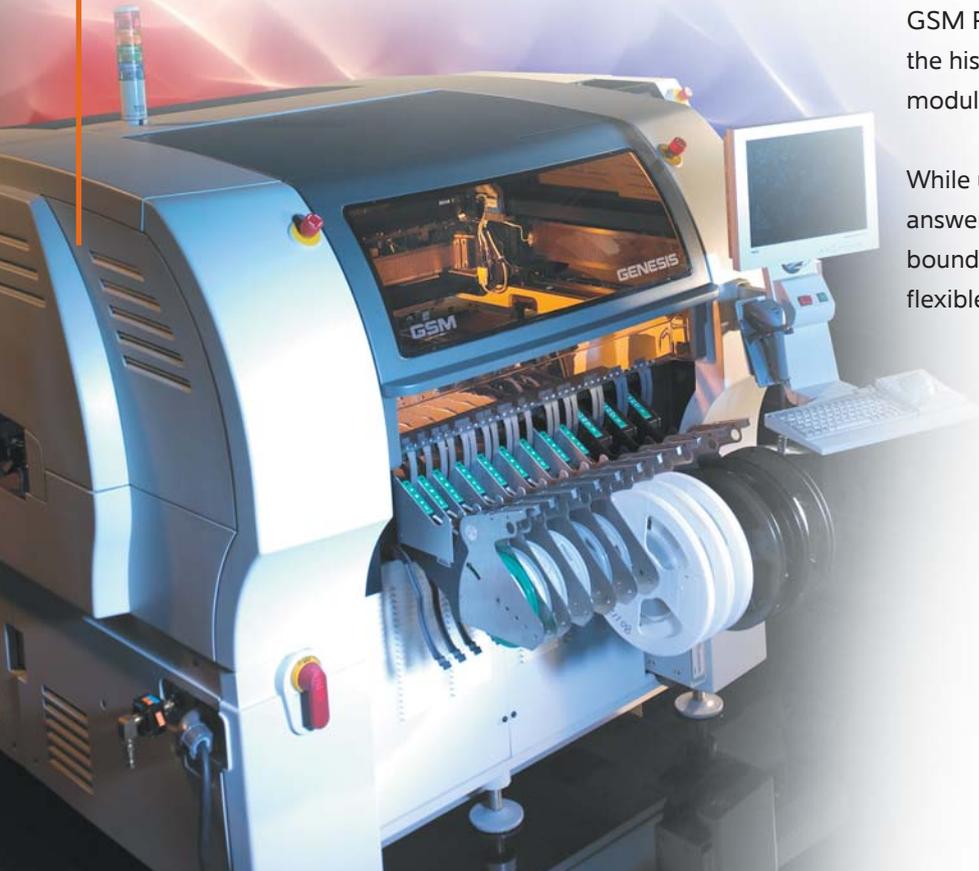
The next generation Genesis® Platform provides the perfect foundation for today's diverse production requirements, and delivers the security you need to meet tomorrow's uncertain challenges.

The Same Proven Formula

Now, more than ever, you need to be agile, in control of capability and capacity, responsive in a highly dynamic environment, and ready for technology shifts over time. But how do you plan capability? What if you need to raise output or place new or additional components? How can you fine-tune each line and manage feeder allocations? Or concentrate your broad range of placement requirements into minimal floor space?

These are the challenges that led us to develop a new generation of robust placement system – the Genesis Platform. It is the new foundation for our equipment development program over the next decade. But, it adopts the same modular platform concept as the GSM Platform – the single most successful platform in the history of SMT; yet delivers a range of pioneering, modular options and productivity benefits as well.

While unparalleled flexibility is just one attribute, it answers all the uncertainties by ultimately relaxing the boundaries between high-speed placement and flexible fine pitch.



Flexibility

Now, you can build an entire line on just one high-performance platform – each machine tailored to deliver the specific capability you need; the line perfectly balanced and optimized by our Dimensions™ Line Level Software suite. You can modify, reassign, and re-balance as required; transfer processes quickly and smoothly; reduce training overhead; and optimize maintenance schedules. With the platform philosophy, immense scalability is a given: add new functionality to a machine; swap functions between machines; even add a new machine in line and configure it to balance production and boost throughput.

Leveraging chipshooter and flexible fine pitch capabilities on one future-proof machine delivers outstanding benefits:

- Common feeders and user interface make quick work of programming and operations
- Fine-tune component allocation and line balancing
- Reduce capital expenditure and footprint by combining capabilities
- Common platform reduces planned maintenance time, frequency, and cost
- VRM linear motors deliver unbeatable accuracy and repeatability
- Increase capacity incrementally by adding heads, options, cameras, or platforms as necessary
- Reduce training, line stoppages, feeder inventory, and spare parts holding
- Wide component range of each platform in the line allows for superior line balance
- Protect your investment knowing Universal Instruments will develop solutions that are field adaptable throughout the life of the Genesis Platform

Affordable

The flexible, new Genesis Platform delivers superior cost of ownership, maximum yield, optimal ease of use, and the ultimate in utilization. It is high-speed placement. It is flexible fine pitch. It is the definitive line balancer. And, it is the blueprint for future all-platform lines that will provide the flexibility, modularity, scalability, performance, and cost model you need to compete and win.

You would expect that all of this flexibility and advanced technology would come with a premium price tag. Perhaps one of the most intriguing aspects of the Genesis is the low investment cost compared to others in its class:

- Genesis list prices are lower than most competitors' discounted prices
- Standard global pricing based on purchase volumes
- Low cost of ownership over the life of the machine
- Scalable solutions in terms of feeders and nozzles to ensure we meet business requirements
- Leverage previously purchased GSM feeders and nozzles to lower initial investment costs

Uncompromising performance

There is no better foundation on which to build this new generation than Universal Instruments' heritage as the world leader in automated, high-accuracy component placement.

The Genesis Platform has world-class roots. It is built with the rock-solid reliability that has characterized the GSM Platform lineage from the outset. Plus, it comes with large-board capability, stationary boards and feeders, and bank change carts supporting spliceable feeders to minimize idle time.

Combined with Dimensions Line Level Software, the Genesis Platform allows you to easily optimize and manage your production at machine, line, factory, and enterprise levels.

The Genesis Platform is engineered for exceptional throughput and repeatability:

- Unique Universal Instruments' VRM linear motor technology optimizes speed, accuracy, and repeatability
- Extremely low cost of ownership due to VRM linear motor's fewer moving parts and less maintenance
- Remarkable speed and reliability with modular placement heads (InLine4, FlexJet3 and Lightning)
- Optimized pick performance with enhanced nozzles
- Bladed nozzles for high-density component spacing
- Three-point individual feeder registration and repeatable bank exchange further enhances pick performance
- Smart feeders with unique ID and cycle counts for performance and maintenance tracking
- Latest Windows-based UPS+ control software for maximum usability, manageability, networkability, and advanced diagnostics
- High-end vision capability maximizes accuracy and minimizes invalid rejects

A Multi-tiered Platform Offering

The Genesis Platform

- A singular platform that offers multiple solutions for most production environments
- Each configuration employs the widest component coverage in its class, allowing manufactures to easily adjust to volume and component changes due to the inherent flexibility and modularity
- The market's leading high-accuracy positioning system with 1 micron resolution encoders
- UPS+ and Windows 2000[®] operating system



GC-60

High-Speed Modular Machine

- 0.063 sec/Chip (optimum conditions)
- 0.099 sec/Chip (IPC9850 conditions)
- 0603mm(0201) - 30mm x 30mm (full speed)
- 508mm x 635mm max PCB (optional)



GX-11

Modular Multi-Function Machine

- Mixed heads (FlexJet3 and InLine4)
- +/- 45µm @ 1.33 Cpk (full speed)
- Odd form capability
- 2.5kg placement force



GI-14

High-Speed, Flexible Modular Machine

- +/- 50µm @ 1.33 Cpk
- 0.12 sec/Chip (optimal conditions)
- 0.69 sec/QFP (IPC9850 conditions)
- 0603mm(0201) - 55mm x 55mm* SFoV
- 0.135mm bump pitch*
- 610mm x 813mm max PCB (optional)
- Up to 25mm tall components

* Other component sizes available

Genesis Line Configuration Examples

Optima Plus Genesis lines address any market segment, with a comprehensive product portfolio that gives you the flexibility to configure exactly the right line for your specific business requirements.

Notebook Production Line

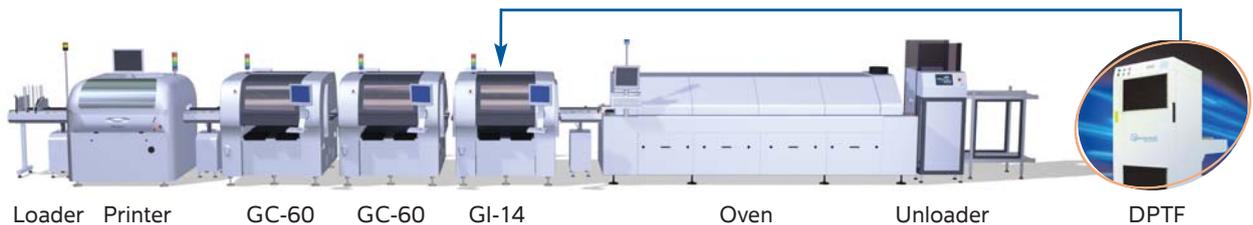
High-volume applications such as notebook computers require high-speed chip placement as well as IC placers that can keep up with the line pulse rate. Multifunction capability is also a must for odd-shaped components such as sockets and connectors.



Average Production Capacity: 130,000 - 110,000 cph (0.028 sec/comp) Total Line Length: 16.29 m

Consumer Production Line

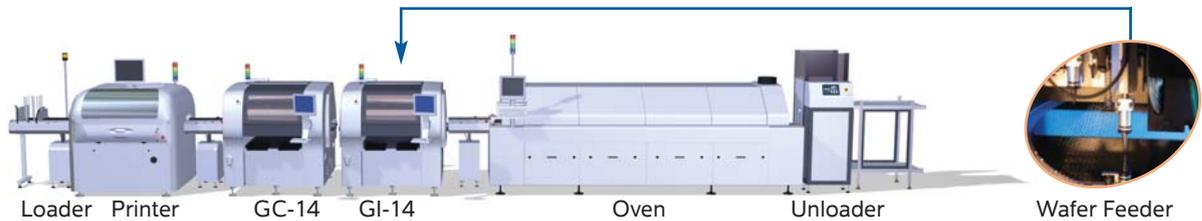
In applications where volumes are high, but the ratio of passive-to-active components is low, the following Genesis line handles a wide component range while delivering high throughput.



Average Production Capacity: 70,000 - 60,000 cph (0.051 sec/comp) Total Line Length: 12.94 m

Flip Chip Production Line

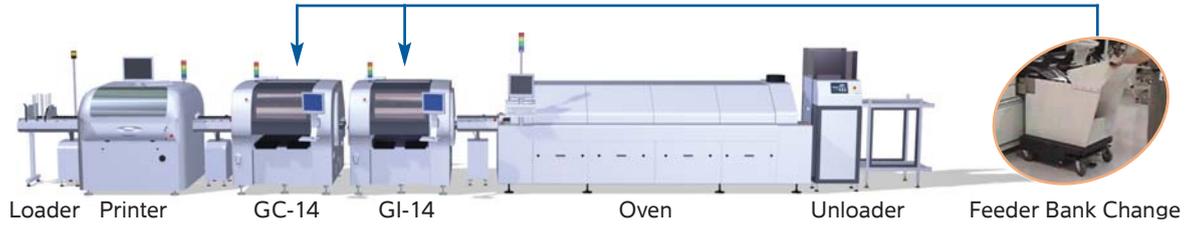
Implementing flip chip assembly requires more than high-accuracy placement machines, like high-magnification cameras, die feeders, tooling, and nozzles. Whether you're starting a new flip chip project or looking to improve your present process, a Genesis line can be tailored to address FCIP, FCOB, and SIP applications.



Average Production Capacity: 34,000 - 20,000 cph (0.106 sec/comp) Total Line Length: 11.26 m

High-Mix Low-Volume Big Board Production Line

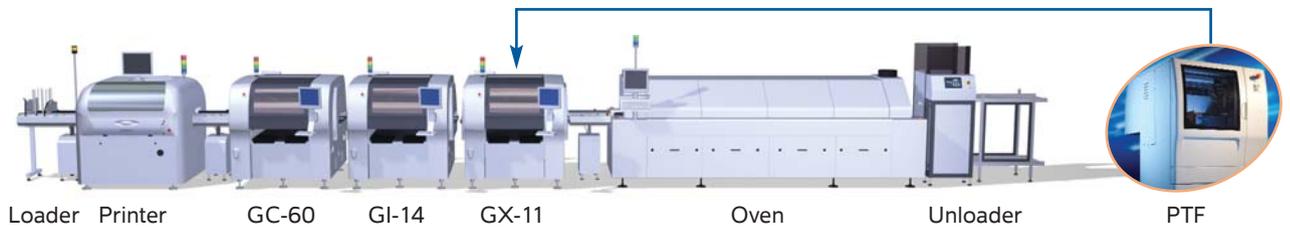
Fast and efficient changeover is a must for small lot runs, customized, and made-to-order products. The Genesis offers several software and hardware options to dramatically improve line utilization. Unique features include big board capability for boards up to 610mm x 813mm (24" x 32") and a wide component range from 0603mm(0201) chips to 130 gram CCGAs.



Average Production Capacity: 34,000 - 20,000 cph (0.106 sec/comp) Total Line Length: 11.26 m

General Purpose Production Line

Constantly changing customer requirements, board sizes, and packaging media are easily met with this Genesis line: chips, CSP/BGA mounting, odd form, pin-in-paste, tubes, component strips, and track components.



Average Production Capacity: 55,000 - 45,000 cph (0.065 sec/comp) Total Line Length: 12.94 m

Product Line Up



Line Loader

Destacker
Bare Board Loader
Magazine Unloader



Screen Printer

DEK Galaxy
DEK Europa
DEK Horizon 01
DEK Horizon 02
DEK Horizon 03
DEK Vista



Mounter

GC-60
GC-14
GI-14
GX-11



Work Table

In-line Workstation



Oven

XPM2 1240
XPM2 1030
XPM2 940
XPM2 820
XPM2 730
XPM2 520
MR933



Line Unloader

Magazine Loader

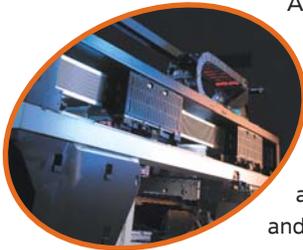
Flexibility Fast

Genesis Overview

- **Dual-beam overhead-gantry system**
- **Dual-drive VRM linear motor positioning system**
- **1 micron resolution linear encoders**
- **Multiple configurations available**
- **Range: 0603mm(0201) - 55mm x 55mm SFoV**
- **Max PCB Size*: W508mm x L635mm (20" x 25")**

** across all GSM Genesis models*

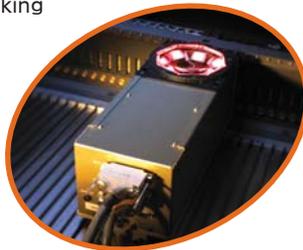
Dual-Beam Dual-Drive Positioning System



As an advancement of the proven GSM technology, the Genesis overhead-gantry positioning system utilizes dual-drive, VRM linear motor technology that allows for higher accelerations and faster settle times.

Upward Looking Cameras

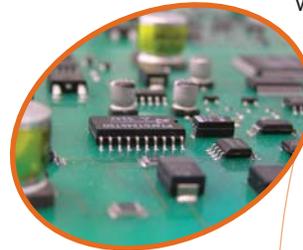
Optional digital upward looking cameras provide the maximum vision flexibility by optimally combining lighting angles. "On-the-fly" vision acquisition means there is little stoppage when processing components.



Real Closed-Loop Control

Our thermally stable platform is equipped with X, Y and Z feedback during pick and place and 1 micron resolution encoders guaranteeing superior accuracy and repeatability via a closed-loop system.

Broad Component Range



Whether you place chips, fine-pitch, BGA/CSP, semiconductors or odd form components, the Genesis platform uniquely fits the end products.

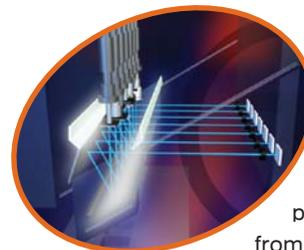
Vacuum and Gripper Nozzles

Pick and place odd-form and non-standard components like connectors easily by selecting from over 700 specialty nozzles and grippers.



On-the-Head Cameras

Some Genesis placement heads have the ability to vision components with on-the-head optics. This allows imaging to take place while the head travels from the feeder bank to the PCB increasing overall machine throughput.



GC-60 Platform

High-Speed Modular Machine

- Dual-beam dual drive overhead gantry system
- Patented VRM linear motor positioning system
- Two 30-spindle rotary Lightning Heads
- Dual on-the-head camera optics
- Spec Speed: 0.063 sec (57,000 cph)
- IPC9850 Speed: 0.099 sec (36,500 cph)
- Range: 0603mm(0201) - 30mm x 30mm
- Vision capable of 217 μ m pitch bumped devices
- Max PCB Size: W508mm x L635mm (20" x 25")
- Feeder inputs: 136 (8mm tape)
- Feeder types: tape
- GC-60 technology incorporates 8 US patents
- Recovery time measured in minutes



Lightning Fast Chip Placement

The Genesis GC-60 comes equipped with two revolutionary high-speed Lightning placement heads. Each head features a radial array of 30 modular, individually controlled spindles.

Lightning comes to market as the industry's fastest placement head technology with a duty cycle of just 55ms – a pick-to-pick or place-to-place performance that delivers chipshooting speeds in a platform system that maintains commonality in feeders, vision, heads and software.

VRM Linear Motor Head Technology

The unique rotary motor drive developed for Lightning is based on Universal's patented VRM (Variable Reluctance linear Motor) technology. Our non-permanent magnet linear motor features fewer parts, improved reliability, and delivers exceptional motion performance.



Dual-Drive Positioning System

- VRM linear motor technology
- Reduced settle time
- Increased acceleration
- Increased accuracy
- Thermally stable - no compensation



Lightning Placement Head

- 30-spindle rotary head
- 55ms duty cycle
- VRM linear motor technology
- 1µm resolution, 25µm precision
- Less than 6 hours per 6 weeks in maintenance



Intelligent Spindles

- Direct-drive theta
- Vacuum generated at spindle
- Self-ID intelligence
- Dry spindle bearing / no oil
- Exchange and recal in minutes



Dual On-the-Head Cameras

- 0603mm(0201) vision capable
- Up to 30mm x 30mm
- 0.8 mil/pix on-the-head camera
- 2.9 mil/pix on-the-head camera
- Chips, BGA/CSP, Melf, QFP, Connector capable, flip chip



Touchdown Sense

- High-precision strain gauge sensor
- Auto Z Update at pick
- Guarantees ideal placement force
- Automatically adapts for board warpage
- Board Z height mapping



Low Maintenance

- Linear motor placement head
- VRM positioning system
- Nozzle life measured in terms of years



Feeders

- Up to 136 (8mm tape) inputs with dual track feeders
- Down to 50ms index time



Calibration

- Exchange spindles < 5 minutes
- Calibrate spindles < 15 minutes
- Nozzle centering

Board Size

- W508mm x L635mm (20" x 25")
- Board support across entire board



GC-60 SPECIFICATIONS

| | | |
|-----------------------------|----------------------|--|
| Spec Placement Rate | Max | 57,000 cph / 0.063 sec per component |
| | IPC Chips (1608) | 36,500 cph / 0.099 sec per component |
| Accuracy | Chips | ±75µm @ 1.33 Cpk |
| | ICs | ±75µm @ 1.33 Cpk |
| PCB Dimensions | Maximum Size (WxLxH) | 508 x 635 x 5mm (20 x 25 x 0.197") |
| | Minimum Size (WxLxH) | 50.8 x 50.8 x 0.508mm (2 x 2 x 0.02") |
| | Maximum Weight | 2.72kg (6 lbs) |
| Component Range | Maximum Size (WxLxH) | 30 ¹ x 30 ¹ x 4mm ^{1,2} (1.18 x 1.18 x 0.24") |
| | Minimum Size (WxLxH) | 0.25 ¹ x 0.5 ¹ x 0.15mm (0.01 x 0.02 x 0.006") |
| | Maximum Weight | 4g |
| Service Requirements | Electrical | 200-240 VAC, Nominal 3-phase, 50 or 60 Hz |
| | | 380-415 VAC, Nominal 3-phase, 50 or 60 Hz |
| Machine Dimensions | Pneumatic | 63.5 N liters/minute @ 6.2 bar (3 CFM @ 90psi) |
| | (LxDxH) | 1676 x 2248 x 1905mm (66 x 88.5 x 75") |
| Machine Weight | | 3107kg (6850 lbs) |

¹ UPS 6.x or higher software required

² 6mm nozzles required

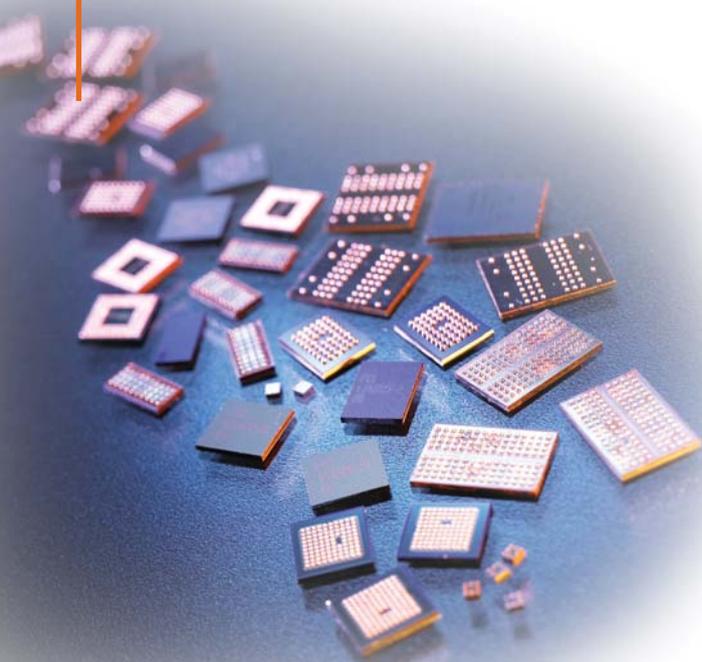
GI-14 Platform

High-Speed, Flexible Modular Machine

- Dual-beam dual drive overhead gantry system
- Patented VRM linear motor positioning system
- Two 7-spindle FlexJet3 placement heads
- On-the-head and upward looking cameras
- Spec speed: 0.12 sec (30,000 cph)
- Range: 0603mm(0201) - 55mm x 55mm SVoF
- Components up to 25mm tall
- PCB size: W508mm x L635mm (20" x 25")
(optional) W610mm x L813mm (24" x 32")
- Feeder inputs: 120 - 144 (8mm tape)
- Feeder types: tape, tray, tube, component strips, bowl, odd form, wafer, waffle & gel pak

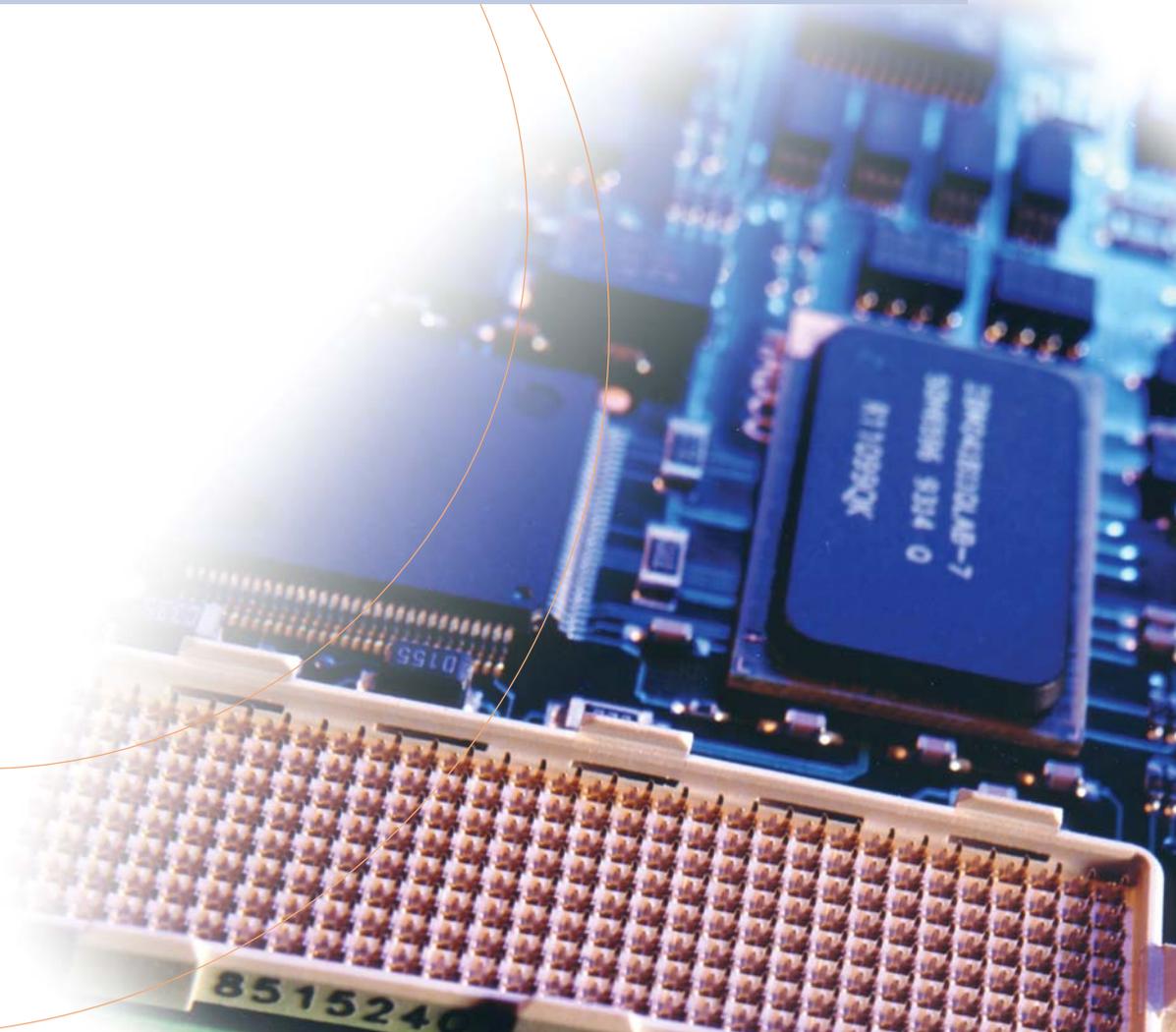


Equipped with two 7-spindle FlexJet3 placement heads and two upward looking cameras for large component image capture, this platform provides high-speed IC placement for high-volume lines or serve the role as a line balancer by off-loading chip placement in lower volume environments.



GI-14 SPECIFICATIONS

| | | |
|-----------------------------|----------------------|--|
| Spec Placement Rate | Max | 30,000 cph / 0.12 sec per component |
| | IPC Chip (1608) | 22,400 cph / 0.16 sec per component |
| | IPC IC (100 QFP) | 5,200 cph / 0.69 sec per component |
| Accuracy | Chip | ±75µm @ 1.33 Cpk |
| | IC | ±50µm @ 1.33 Cpk |
| PCB Dimensions | Maximum Size (WxLxH) | 508 x 635 x 5.08mm (20 x 25 x 0.2") |
| | Minimum Size (WxLxH) | 50.8 x 50.8 x 0.508mm (2 x 2 x 0.02") |
| | Maximum Weight | 2.72kg (6 lbs) |
| | Topside Clearance | 26.5mm (1.04") |
| with big board kit | Maximum Size (WxLxH) | 610 x 813 x 5.08mm (24 x 32 x 0.2") |
| | Maximum Weight | 6.8kg (15 lbs) |
| Component Range | Maximum Size (WxLxH) | 24 x 24 x 11.68mm (2.17 x 2.17 x 0.98") |
| | Minimum Size (WxLxH) | 0.508 x 1.02 x 0.15mm (0.02 x 0.04 x 0.006") |
| with ULC | Maximum Size (WxLxH) | 55 x 55 x 25mm (2.17 x 2.17 x 0.98") |
| | Minimum Size (WxLxH) | 0.25 x 0.5 x 0.15mm (0.01 x 0.02 x 0.006") |
| | Maximum Weight | 27g (up to 130g via RFQ) |
| | Electrical | 200-240 VAC, Nominal 3-phase, 50 or 60 Hz 380-415 VAC, Nominal 3-phase, 50 or 60 Hz |
| Service Requirements | Pneumatic | 63.5 N liters/minute @ 6.2 bar (3 CFM @ 90psi) |
| | (LxDxH) | 1676 x 1633 x 1910mm (66 x 64.3 x 75.2") |
| Machine Dimensions | | |
| Machine Weight | | 3048kg (6720 lbs) |



GX-11 Platform

Modular Multi-Function Machine

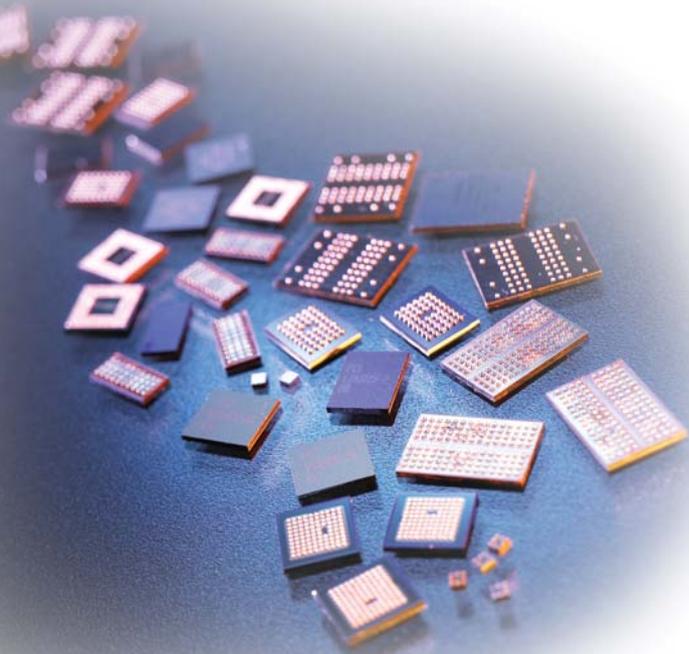
- Dual-beam dual drive overhead gantry system
- Patented VRM linear motor positioning system
- Mixed-head / dual-head configuration
- On-the-head and upward looking camera optics
- Accuracy: $\pm 45\mu\text{m}$ @ 1.33 Cpk
- Range: 1005mm(0402) - 55mm x 55mm SFoV
- PCB Size: W508mm x L635mm (20" x 25")
(RFQ) W610mm x L813mm (24" x 32")
- Feeder inputs: 120 - 132 (8mm tape)
- Feeder Types: wafer, waffle pak, gel pak, tape, tube, bowl



Extreme Component Placement

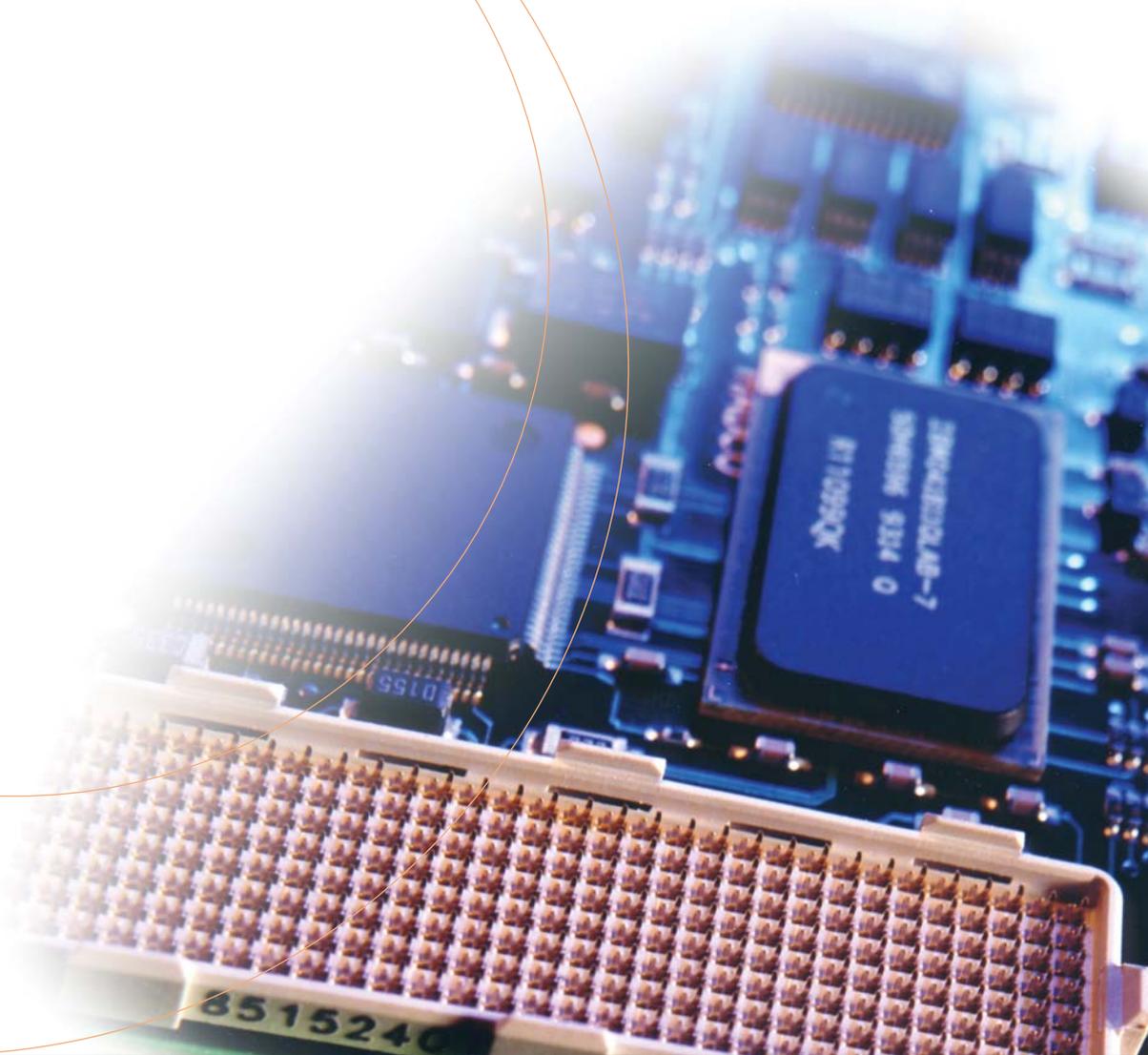
The GX-11 features the 4-spindle InLine4 head and provides superior price performance and a more extensive part range relative to the other popular high-speed IC and odd form solutions in the market today. In terms of maintainability and cost of ownership, the InLine4 and FlexJet3 head designs set a new standard in terms of frequency, duration and cost.

The InLine4 head enables the GX-11 to insert odd form components with up to 2500 grams of placement force, leveraging over 11 years of experience with special odd form and vacuum nozzles and feeders, while handling them with the delicacy of a fine pitch flexible machine through its ability to detect when a component comes in contact with the circuit board. In addition, the FlexJet3 helps maintain high machine output for standard chip and mid-size SM components achieving IPC output between 18,000 for chips and 4,100 for ICs.



GX-11 SPECIFICATIONS

| | | |
|-----------------------------|----------------------|--|
| Spec Placement Rate | Max | 6,100 cph / 0.59 sec per component |
| | IPC IC (100 QFP) | 3,000 cph / 1.2 sec per component |
| Accuracy | IC | ±45µm @ 1.33 Cpk |
| PCB Dimensions | Maximum Size (WxLxH) | 508 x 635 x 5.08mm (20 x 25 x 0.2") |
| | Minimum Size (WxLxH) | 50.8 x 50.8 x 0.508mm (2 x 2 x 0.02") |
| | Maximum Weight | 2.72kg (6 lbs) |
| | Topside Clearance | 26.5mm (1.04") |
| with big board kit | Maximum Size (WxLxH) | 610 x 813 x 5.08mm (24 x 32 x 0.2") |
| Component Range | Maximum Size (WxLxH) | 55 x 55 x 25mm (2.17 x 2.17 x 0.98") |
| | Minimum Size (WxLxH) | 0.25 x 0.5 x 0.15mm (0.01 x 0.02 x 0.006") |
| | Maximum Weight | 35g (up to 130g via RFQ) |
| Service Requirements | Electrical | 200-240 VAC, Nominal 3-phase, 50 or 60 Hz 380-415 VAC, Nominal 3-phase, 50 or 60 Hz |
| | Pneumatic | 63.5 N liters/minute @ 6.2 bar (3 CFM @ 90psi) |
| Machine Dimensions | (LxDxH) | 1676 x 2248 x 1905mm (66 x 88.5 x 75") |
| Machine Weight | | 3048kg (6720 lbs) |



Options and accessories

Pneumatic Tape Feeders

Pneumatic tape feeders process a wide range of paper and embossed component types. Available in 8, 12, 16 and 24mm sizes.



Electric Tape Feeders

Smaller and lighter, these 8 and 12mm continuous running tape feeders process paper and embossed component types. These intelligent feeders feature manual pitch adjust.



PrecisionPro Tape Feeders

These high-performing intelligent feeders feature the fastest indexing time. These feeders, available in 8mm - 120mm sizes, feature automatic pitch control and are splice capable.



Splice Capable Feeders

The Electric and PrecisionPro tape feeders can be easily spliced together enhancing production output.



Tube Feeders

Tube feeders provide stable component supply and can feature automatic tube eject. Common vibratory bases help to minimize investment.



Odd Form Feeders

Several kinds are available allowing for placement using bowl feeders, axial, GPAX feeders and others.



Stationary Matrix Tray Feeder

This system can feed standard JEDEC and vacuum-formed tray types. A maximum of two trays can be used per feeder bank.



Direct Pick Tray Feeder

Randomly access 28 unique part numbers in standard JEDEC and vacuum-formed trays. Different modes allow 56 unique component parts or the ability to replenish components without stopping.



Platform Tray Feeder

Random-access capability for 58 unique part numbers in standard JEDEC trays. The PTF allows for maximum machine feeder capacity as it can be mounted to not consume any feeder slots.



Wafer Feeder

The Wafer Feeder processes up to 25 wafers with sizes up to 300mm. On-line or off-line wafer expansion options are available.



Strip Tape Feeder

Short strips of 8 and 12mm components can be fed using one of two types of strip feeders.



Tape Cutter

Automatic cutting of used paper and plastic tape after components have been picked.



Off-line Feeder Setup Table

Reduce changeover time by setting up feeders off-line and exchanging an entire bank at once.



Off-line Feeder Setup Cart

This setup cart features power and air connections allowing for easier swapping of feeders with no downtime.



On-line Validation (PSV)

Ensure proper setup on the machine before running your product. Validation can be supported on our Platform Tray Feeder and our spliceable PrecisionPro tape feeders.



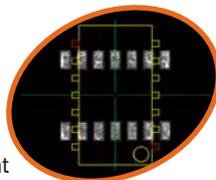
Long Board / Large Board Kits

The long board kit increases the length of the standard board from 508mm (20") to 635mm (25"). The large board kit increases the board size to 610mm x 813mm (24" x 32").



New Product Introduction Software

This software enables easier and faster error correction ahead of first article build. Fine tune component or board data, fiducial information or feeder profiles as well as perform post-placement inspection to facilitate verification.



SECII/GEM

This networking protocol allows you the ability to connect your machines, lines and factories, simplifying software maintenance and monitoring.



Feeder Bank Change

Perform entire bank changeovers in a matter of minutes. The removable feeder bank kit transforms any of the four feeder banks into removeable ones.



Belt Reject Conveyor

Use this option when rejecting expensive components.



Tape Dump Box

The standard tape dump box (without cutter) stores the waste from tape feeders keeping your manufacturing floor clean.



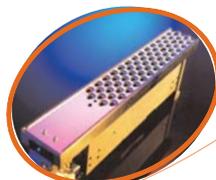
Magellan® Digital Camera

Superior resolution and a larger field-of-view enable the Magellan upward-looking camera to acquire images of larger components per single field-of-view.



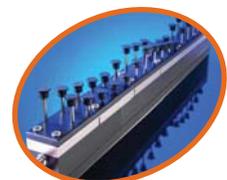
Automatic Nozzle Changers

Several nozzle stations exist to optimally support each placement head. For most GSM Genesis models, nozzle change can be done during the production run.



Board Support

Primarily used for boards over 228.6mm (9"), there are multiple board support types available. The standard pin system (10mm spacing) is typical, while options exist for integrating third-party board handling support systems.



Dimensions

Line Level Software

Connect, Maintain, Optimize

If you are looking to get more from your assembly equipment investment, Dimensions Line Level Software gives you all of the tools you need to improve the utilization and operational efficiency of your Universal Instruments production lines. Use Dimensions to quickly create highly optimized programs and family setups, manage component databases, implement component-level traceability, manage multiple machines from your desktop, and query manufacturing data. Choose from the Line Control Box, Line Programming Box, or a combination of both, architected for maximum flexibility and minimal interdependence.



Line Control Box - Provides real-time changeover assistance, performance monitoring, feeder management assistance, and on-board error recovery features to maximize utilization on the factory floor.

- **Traceability**
- **Changeover Assistance**
- **Production Management**

Line Programming Box - Helps create and maintain better, more highly optimized programs and production schedules. Further functional features may be added at any time, as needed.

- **Programming and Optimization**
- **Component Library Management**



Options Matrix

| | | S=Standard | O=Option | R=RFQ |
|--------------------|--|------------|----------|-------|
| | | GC-60 | GI-14 | GX-11 |
| Head | 7 In-line Spindle Head: 2.6 m/p OTHC | | S | S |
| | 7 In-line Spindle Head: no OTHC | | O | O |
| | 4 In-line Spindle Head, High Insertion Force | | O | S |
| | Kit, Pressure Readout Assembly: 4 Spindle | | O | O |
| | 30 Spindle Head | S | | |
| | 7 Count ANC Station | | S | S |
| | 70 Count ANC Station | S | S | S |
| | Gripper Nozzle | | O | O |
| | Customized Nozzles | R | R | R |
| | Automatic Pick Update in X,Y and Z | S | S | S |
| Mixed-Head Support | | | S | |
| Vision | Magellan Upward Looking Camera, Circular: 2.3 m/p | | S | S |
| | Magellan Upward Looking Camera, Circular: 0.5 m/p | | R | R |
| | PEC (Fiducial) Camera | S | S | S |
| | UniversalLight | | O | O |
| Feeders | Bank Feeder Exchange System | O | O | O |
| | Fixed Feeder Bank Assembly | O | O | O |
| | Feeder Bank, Removable | O | O | O |
| | Tape Feeder: Precision Pro Class | O | O | O |
| | Tape Feeder: Electric Feeder Class | R | O | O |
| | Tape Feeder: Pneumatic Feeder Class | | O | O |
| | Tape Feeder: Traditional Multi-Pitch Class | | O | O |
| | Deep Pocket Tape Feeders | | O | O |
| | Multi-tube Feeder | | O | O |
| | Track Feeders | | O | O |
| | Component Strip Feeder: Single-lane | | O | O |
| | Component Strip Feeder: Multi-lane | | O | O |
| | Stationary Matrix Tray Feeder | R | O | O |
| | Wide Stationary Matrix Tray | R | O | O |
| | Direct Pick Tray Feeder | | O | O |
| | Platform Tray Feeder | | O | O |
| | Linear Thin Film Applicator Assembly | | R | R |
| | 12 Position Precision Matrix Tray Feeder (2x2") | | R | R |
| | 3 Position Precision Matrix Tray (4x4") | | R | R |
| | Stack Tray feeder for 2x2" Waffle Paks (Laurier) | | R | R |
| | Flip Chip Coverless Tape Feeder w/ Integrated Flipper | | R | R |
| | JEDEC 2 Bottom-up Tray Feeder | | R | R |
| | Single Feeder Set-up Station, Table Mount | O | O | O |
| | Universal Splicing Tool | O | O | O |
| | Component Reject Conveyor (QFPs) | O | O | O |
| | Scrap Box Assembly | O | O | O |
| | Kit, 120 VAC for External Items | | O | O |
| | Reject Bucket | O | O | O |
| Odd Form Feeders | | R | R | |
| Boards | Programmable Width Control | S | S | S |
| | Right to Left Transfer | O | O | O |
| | 5mm Board Clear and (Big, Heavy Boards) | O | O | O |
| | Standard Board Size with board support (W508 x L508mm) | S | S | O |
| | Long Board Size with board support (W508 x L635mm) | O | S | O |
| | Large Board Size with board support (W610 x L813mm) | | R | R |
| | 3" Party Board Support (Gridlock, Red-E-Set) | R | R | R |
| | Precision Board Lifter | R | R | R |
| | Vacuum Board Support | R | R | R |
| Other | CE Standard (for EU region) | S | S | S |
| | AC Line Filter - emissions | O | O | O |
| | Universal Legacy Feeder Support (24v Transformer) | | S | S |
| | Tape Cutter | O | O | O |
| | SECSII/GEM Software Driver & License | O | O | O |
| | New Product Introduction Software | | O | O |
| | ASA Software Stream | R | R | R |
| | C4 Software Key | R | R | R |
| | Look Before Pick Software Key | R | R | R |
| | Traceability Software | O | O | O |
| | On-line Setup Validation Software (PSV) | O | O | O |
| Local Language | O | O | O | |
| Specified Color | R | R | R | |

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