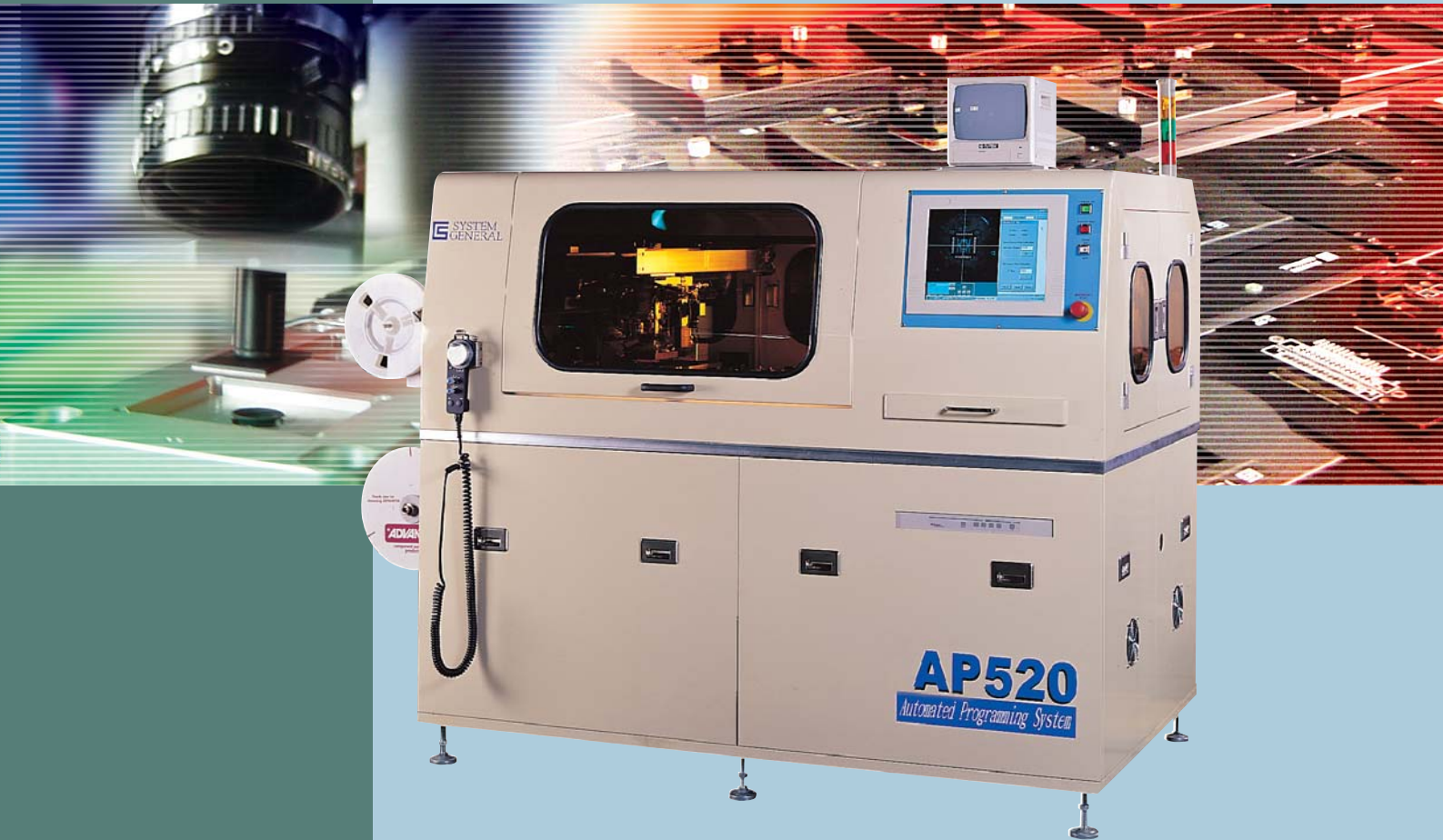


Your Automated Programming Solution for One-Piece-Flow Operation



Features

- Up to 16-site pick-and-place automated device programming system.
- Throughput up to 1200 UPH under zero programming time.
- Automatic tray stacker accommodating up to 20 JEDEC or Non-JEDEC trays.
- Downward CCD camera for Teach plus on-the-fly laser alignment system.
- Dual pick-up heads on the gantry with height sensor.
- H9600 high-speed universal programmer with up to 448 pin drivers.
- Fully integrated subsystems to provide one-piece-flow operation.
- Network-oriented Windows®-based Job software with USB interface.
- Optional subsystem of laser marking or labeling.
- Optional upward CCD camera or lead inspection module.
- Optional I/O media of tapes and tubes available.

AP520

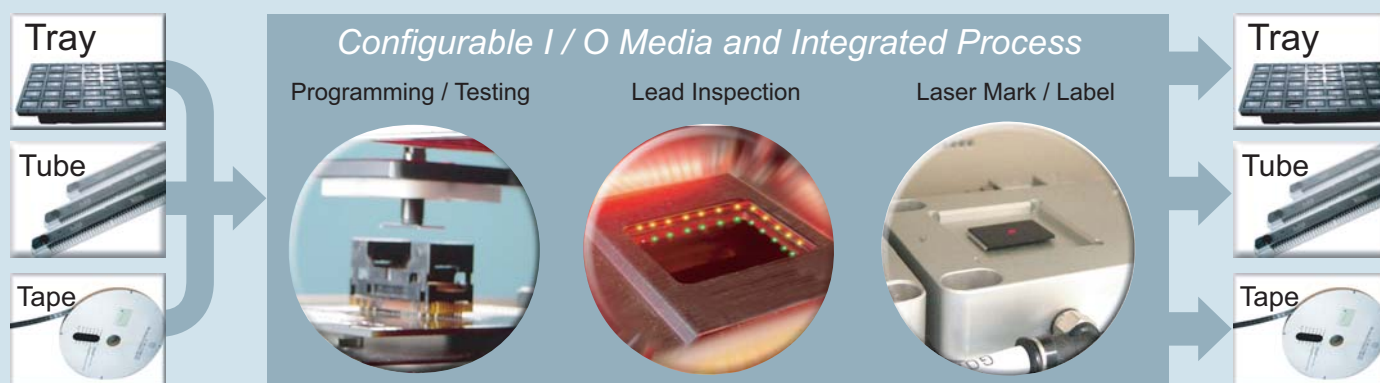
Automated Programming System

AP520 was designed with customers' needs in mind

For years, the industry has been using automated handlers for device programming. Still, customers are constantly looking for better solutions. Guided by their needs, System General proudly presents the AP520 Series Automated Programming System, a highly-reliable automated solution capable of producing unparalleled throughput with minimal operator intervention.

A programming workstation for one-piece-flow operation

The AP520's design philosophy is to provide a one-piece-flow programming workstation capable of completing programming tasks with minimal human intervention. This handler comes standard with tray-to-tray interface and an automatic tray stacker. Tape and/or tube interfaces are optional, and laser mark or labeling of devices can be selected for this workstation.



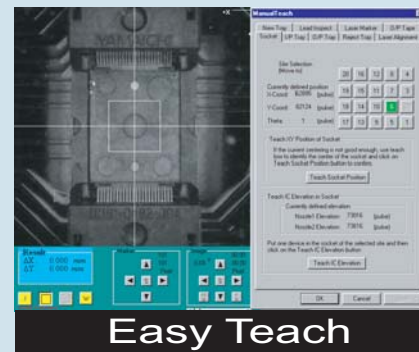
Dual pick-up heads and up to 16 programming sites for the highest throughput

The gantry of AP520 was designed to travel at high speed in order to reach the highest throughput of 1200 UPH. Two pick-up heads on the gantry allow the system to finish the device removal/insertion routine of each programming cycle in one trip. Up to 16 programmer sites enable the AP520 to generate consistent throughput, regardless of target device size.



Accurate vision alignment and minimum Teach overhead

The AP520 is equipped with two vision cameras plus an on-the-fly laser system for accurate insertion alignment. Its efficient alignment mechanism helps reduce the Teach overhead of each programming task. For various socket types with different size profiles, a Height Sensor automatically defines the ideal height for device pick-up and insertion. The on-the-fly laser corrects pick-up head offset while on its way to the socket. The upward camera aligns those big devices with dimensions greater than 3.0 cm x 3.0 cm. Alternatively, the upward camera can be replaced by a lead-inspection camera for coplanarity check!



Easy Teach

AP520 interfaces to the FASTEST programmer ever built

In 1998, System General led the industry by introducing the world's fastest High Speed Programming (HSP) solution. Since then, HSP has become the benchmark that others are attempting to reproduce. While other programmer vendors are still striving to catch up, System General is ready for the next-generation technology. With proven HSP technology embedded within the universal programmer, System General's advanced Model 9600 makes the AP520 the industry's fastest Universal Automated Programming System.

The new 9600 programmer was designed to program the latest device technologies. Its USB interface downloads large Memory files in seconds. The 9600's 1.2 volt Vcc capability supports the next generation of "Green" devices. Up to 448 pin drivers allow the upgrades of the future 32/64 bit wide Flash Memory. Its accurate Current Sensing capability covers the demanding Anti-Fuse parts in its device support list.



Optical Alignment

All Times Represented in Seconds

Flash Device	Blank Check	Program	Verify
28F160B3TA	1	12	1
28F320B3TA	2	25	2
28F640W18	5	26*	NA *
28F128K3C	9	78**	NA **

* Benchmark based on the Intel EFP algorithm. Verify has been included as a part of the program cycle.

** Benchmark based on the Intel BEFP algorithm. Verify has been included as a part of the program cycle.

Automatic tray stacker for JEDEC or Non-JEDEC trays

The tray stacker on the AP520 was designed to transport light-weight trays with BGA, QFP, TSOP and other fine-pitched devices on them. It accommodates up to 20 trays, JEDEC or non-JEDEC. A user-friendly software program allows you to easily customize the tray interface.



H9600 Programming module



Automatic Tray Stacker

Specification

■ Component handler system

Throughput: 1200 UPH(`Tray-LIM-Tray`)

Placement accuracy: ± 0.10 mm

Placement repeatability: ± 0.03 mm

Placement force: 95 grams

Pick-and place method: dual vacuum nozzles

Component detection: Laser sensing and vacuum sensor

Dimension: 190(L)x120(W)x170(H) cm (74.8x47.2x66.9 in)

Shipping dimension: 225x210x205 cm
(88.6x82.7x80.7 in)

Net Weight: 2030 Kg (or 4466 lb)

Shipping Weight: 2470 Kg (or 5434 lb)

Safety: CE compliant

* Actual dimension and weight depend on the options and subsystems ordered.

■ Positioning system

X-Y drive system: Servo motor drive system

X axes resolution: 0.006 mm

Y axes resolution: 0.005 mm

X-Y axes repeatability: 0.010 mm

X-axis maximum velocity: 2.50 m/sec

Y-axis maximum velocity: 1.60 m/sec

Z-theta drive system: Servo motor

Z axis resolution: 0.001 mm

Z axis repeatability: 0.05 mm

Z axis maximum velocity: 0.334 m/sec

Theta axis resolution: 0.036 deg.

Theta axis repeatability: 0.072 deg.

■ Position recognition system

Laser alignment sensor: component position
recognition system for dimension less
than 3.0 cm x 3.0 cm

Upward camera: (optional) component position
recognition system for dimension larger
than 3.0 cm x 3.0 cm.

Downward camera: Socket and I/O position
recognition system

Local fiducials: Socket position reference
coordinate system

■ Programming system

Programming sites: Up to 16 sites

Type: H9600 high-speed Universal programmer on
each site.

Pin drivers: 112 standard, extendable to 448 per site.

Devices supported: EPROM, EEPROM, Flash,
microcontrollers, PLD, CPLD, Anti-Fuse, FPGA
and more.

Packages supported: PLCC, TSOP, TSSOP, TQFP,
PQFP, SOIC, SSOP, BGA, CSP and more.

File formats supported: Intel Hex, Microchip INHX,
Tektronix Hex, Motorola S, Signetics Hex,
Extended Tekhex, HP 64000 Absolute,
Spectrum, TI SDSMAC, ASCII Hex, ASCII Oct,
ASCII Binary, Formatted Binary, Binary,
JEDEC, POF, DIO, AFM, JAM, STAPL, LOF.

RAM Buffer: 128 Mbits standard, expandable up to
1024 Mbits.

Communication: RS-232 and USB link

Safety: CE compliant

■ AP520 system software

User interface: Windows-based HMI

Operating system: Windows 98/2000/NT

■ Operation Requirements

Input voltage: 220V, 3-phase, 4-wire.

(200/220/240/380/400/415 /440V with optional
transformer)

Input line frequency: 50/60 Hz

Power consumption: 2.5 KVA

Air pressure: 75 ~ 95 PSI

Air flow: 120 liters/min (4.2 CFM at Peak)

Operation temperature range: 15 ~ 30°C

Relative humidity: 35% ~ 90%

■ Optional subsystems

CO2 Laser marking

Labeling

Upward CCD camera

Tape-and-Reel Input/Output media

Tube Input/Output media

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