PPM
Precision Placement Machines, Inc.

FLEXIBLE SOLUTIONS FOR Electronics Assembly Automation

IVc & IIc

Performance

Tyco Electronics offers its field-proven "C" Series SMT placement systems for economical, high precision SMT production. Integrating ultra-fine pitch precision with system flexibility, these modular assemblers offer a comprehensive range of solutions for diverse SMT applications. The "C" Series IIC and IVc$_{mk2}$ systems handle complex boards - with components from 0201s to 3.00" square – at placement rates of up to 3,600 cph. Six models accommodate up to 115 electronic tape feeders:

IIc/68, IVc $_{mk2}$/68	in-line transport
IIc/90, IVc $_{mk2}$/90	in-out shuttle
IIc/115, IVc $_{mk2}$/115	workholder

Platform

Adaptable for either stand-alone or in-line SMT applications, a newly reconditioned "C" Series System accepts boards up to 18" x 23.9". Detachable base feeder carts support quick setup and rapid changeover. A matrix tray handler and bulk, vibratory or electronic tape feeders are also available. The AutoProgram operating software offers CAD support and automatic program generation for easy setup and operation.

Advanced Features for Maximum Precison

The QuadAlign in-process component alignment technology system, a high resolution vision system and direct drive theta maximizes "C" Series System precision. The QuadAlign system provides automatic correcting for X, Y and theta positioning before placement .

The QuadVu 6 upward vision system offers programmable illumination angle and true measurement quality optics to create accurate video images. Interactive programmable illumination significantly increases the accuracy of fiducial correction and lead identification for fine pitch placement.

X-Y linear glass scale encoders provide exact placement coordinates with consistent ±60 micron repeatability.

Features and Benefits

- Flexible solutions for SMT fine pitch production
- Ultra-fine pitch precision
- Broad component range and board size capability
- Up to 115 electronic 8 mm tape feeder capacity
- An economical medium volume production solution able to reliably maintain consistent high placement speeds.

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Precision Placement Machines Inc., 326 Main Street - Unit 11;

IVc - General Specifications

IIc or IVc$_{mk2}$ Model	/115	/90	/68
Maximum Placement Rate	3600 CPH	3600 CPH	3600 CPH
Component Processing Range	0201 to 76.2mm (3.0") square		
QuadAlign Alignment			
Component range	0201 – PLCC84		
Minimum pitch	.635mm (0.025")		
QuadVu 6 Upward Vision Alignment*			
Minimum pitch	0.4mm (0.016")		
Feeder Capacity			
8mm feeders	115	90	68
8mm feeders w/Vu6	110	90	68
Placement repeatability @ 3 sigma			
Fine pitch	±0.060mm (±0.002")		
Chips	±0.100mm (±0.004")		
Number of placement nozzles	6		
Facilities			
Length	1067mm (42")	1321mm (52")	1067mm (42")
Width	1067mm (42")	1067mm (42")	1067mm (42")
Height (w/light tower)	1829mm (72")	1829mm (72")	1829mm (72")
Floor space requirements			
Length (w/computer console)	1524mm (60")	1524mm (60")	1524mm (60")
Width (w/ 7" reels & console)	1905mm (75")	2286mm (90")	1905mm (75")
Power requirements			
Input line voltage	200, 208, 220, 230 or 240 VAC, single phase		
Inline line frequency	50/60 Hz		
Power consumption	1.2 KVA		
Compressed air	5.56 bar (80 - 100 psi)		
Air flow	203 l/m (8.1cfm)	52l/m (2.1cfm)	52l/m (2.1cfm)
Operational temperature range	13° - 35°C (°55 - 95°F)		
Relative humidity	30 - 90%		
Shipping dimensions & weight			
Length	1220mm (48.0")	1524mm (60.0")	1220mm (48.0")
Width	1220mm (48.0")		
Height	1752mm (69.0")		
Shipping Weight	589kg (1300 lbs)	635kg (1400 lbs)	589kg (1300 lbs)
Accessories box dimensions	107 x 107 x 107mm (42" x 42" x 42")		
Accessories box weight	113kg (250 lbs)		

Board Handling

Maximum board size			
Width	457mm (18.0")	457mm (18.0")	457mm (18.0")
Length	457mm (18.0")	559mm (22.0")	607mm (23.9")
Minimum board size			
Width	not limited	51mm (2.0")	51mm (2.0")
Length	not limited	76mm (3.0")	76mm (3.0")
Conveyor height	952.5mm ±12.7mm (37.5 ±0.5"); SMEMA		
Maximum board warpage	±1.65mm (±0.065")		
Registration type	Edge, fiducial	Edge, pin, fid.	Edge, pin, fid.
Edge clearance	1.90mm (0.075")	17.8mm (0.70")	17.8mm (0.70")
Underside board clearance	45.7mm (1.8")	10.6mm (0.42")	10.6mm (0.42")
Topside board clearance	7.62mm (0.30")	7.62mm (0.30")	7.62mm (0.30")

	All Models
Positioning System	
X-Y drive system	micro-stepper motor-driven**
X-Y encoder type	linear glass scale
X-Y axis resolution	±0.0127mm (±0.0005")
Z-drive system	high performance stepper motor-driven ball spline
Z-axis resolution	±0.025mm (±0.001")
Theta drive system	stepper motor-driven anti-backlash twin gear assembly
Theta axis resolution	0.015°
Control System	
User interface	Central Controller
Camera teach capability	standard
Multi-image panels	standard
Rotated board images	standard
Component pattern repeats	standard
CAD/ASCII data input	standard – AutoProgram™ for Windows™
Feeder optimization	standard – AutoProgram for Windows
Placement optimization	standard – AutoProgram for Windows
Line balancing	standard – AutoProgram for Windows
Integrated PC controller	standard – PC w/VGA monitor
Vision System	
Processing type	ICOS MVS 256-gray level pattern recognition system
QuadVu 3 Downward Vision	
Fiducial alignment types	board, panel, local
Fiducial target types	any repeatable image (scene)
Synthetic fiducial capable	square, circle, rectangle
Bad image rejection	standard Vu3
Bad image target types	light to dark or dark to light contrast
Lighting type	LED array
Light level adjust	automatic software control
Field of view	15.24mm (0.6")
QuadVu 6 Upward Vision	
Lighting type	bright and/or dark field illumination
Light level adjust	automatic software control
Optics type	telecentric
Field of view	38.1mm (1.5")
Multiple field of view	standard (components larger than 1.3" [33.02mm])
Processing time per view	1-3 seconds typical

Optional Equipment

Detachable base docking feeder cart
Underside board support
MT-20 matrix tray handler
Adhesive dispenser (IVc$_{mk2}$ only)

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