

AT3-300D Automated Programming System

An economical multiple pick & place auto programmer for ICs on / in Tray, Tube and Tape

AT3-300D equipment is an economical multiple pick & place auto programmer for ICs on / in tray, tube and tape. System is equipped with 2 pick & place nozzles and 2 built-in Programming Units. It provides intelligent operation for IC programming, tape-out-marking and packing conversion with powerful software control. The resident Programming Units offer efficient and reliable multi-site IC programming. Optional tape-out-marking is available after programming. A variety of I/O devices can be mounted and changed easily providing flexibility of input / output options basing on IC packing form. AT3-300D System takes about 5.5 sec. for each 2 units of pick & place thus get throughput up to ~1300 UPH for ICs with programming time less than 22 sec.



Key features

- **Excellent performance ---**
The system can operate a variety of input and output options with tray, tube and tape I/O devices thus provides programming, tape-out-marking and packing conversion for most of IC products on / in tray, tube and tape.
- **Intelligent operation ---**
Automatic multiple pick & place operation in sequence of IC loading / pickup / positioning / insertion / programming / sorting / optional marking / unloading with powerful software control.
- **Accurate positioning ---**
System is equipped with two precise CCD. One fixed, upward CCD for IC positioning while the other carried, downward CCD for sockets / pick & place spots positioning.
- **Reliable programming ---**
The built-in programmers are designed with high speed CPU, resided FPGA, high capacity pin drivers and USB interface, thus providing a high speed, low noise, accurate and reliable programming platform.
- **Multi-site programming ---**
Programming Module may have 1, 2, 4, 6 or 8 sockets on board considering programming time. Up to $8 \times 2 = 16$ units of IC can be programmed simultaneously, thus eliminating / minimizing handler idle time when programming high capacity memory devices.
- **High throughput ---**
Up to ~1300 UPH, about 5.5 sec. handler index time for each 2 units of pick & place. System offers ~1300 units / hour consistent throughput for ICs with programming time less than 22 sec.
- **Optional marking ---**
System provides optional dot / alphanumeric tape-out-marking after programming.
- **Easy change-over & maintenance ---**
Easy and fast change-over of socket modules and I/O devices when switching IC products among tray, tube and tape. Power-on self-diagnostics and modularized design allow system easy for maintenance, repair and replacement.
- **Powerful operation software ---**
Both setup data and test results are automatically saved for next power-on operation as well as for quality / yield traceability. Graphical user interface makes it easy to access.

Specification

- **Motion**
 - X-Y drive : High performance servo drive system
 - Transmission : Ball screw & linear guide mechanism
 - Resolution : X axis: $\pm 0.03\text{mm}$, Y axis: $\pm 0.02\text{mm}$, Z axis: $\pm 0.02\text{mm}$
 - Max. stroke : X axis: 472mm, Y axis: 645mm, Z axis: 50 mm
 - Theta axis resolution : 0.15°
 - Pick & Place head placement accuracy : $\pm 0.10\text{mm}$

- Vision
 - Camera : Fixed CCD: 659 x 494 pixels.
Carried CCD: 659 x 494 pixels
 - Field of view : 19.2mm x 19.2mm
 - Vision alignment : IC corner leads
 - Vision accuracy : ± 0.01 mm
 - Vision process time : ~ 0.1 sec / unit

- Programming
 - Resident programmer : ALL-100A for programming of regular MCU and memory devices
FLASH-100 for programming of high capacity memory devices
 - Programming site : $8 \times 2 = 16$ sites
 - Pin driver : ALL-100A: 68 universal pin drivers per set
FLASH-100: 56 x 8 universal pin drivers per set
 - Applicable products : PROM, EPROM, EEPROM, FLASH, MCU, PLD, PAL, FPGA... etc.
 - Applicable packages: SOP, SSOP, PLCC, MLF, TSOP, QFP, QFN, TQFP, BGA, μ BGA...etc.

- Marking
 - Marking : Optional tape-out-marking with dot (1.5mm \sim 2.0mm) or alphanumeric (2mm x 3mm)

- Throughput
 - Handler index time : ~ 5.5 sec. / 2 units
 - Throughput : ~ 1300 UPH

- I/O devices
 - Auto Tray : Auto tray move in, move out and replacement. Stack up to 20~25 JEDEC trays for fresh / pass units
 - Semi-auto Tray : Auto tray move in, move out but manual replacement for fresh / pass units
 - Manual Tray : Two JEDEC trays for manual input / output or spares / rejects binning
 - NG Plate : One small plate for prog. & other rejects
 - Tube Input : 150mil, 208mil, 300mil... packages available. Load capacity : 4 tubes
 - Tube Output : 150mil, 208mil, 300mil... packages available. Load capacity : 4 or 6 tubes
 - Tape Input : Options of mechanical drive mode & electrical drive mode are available
Tape In with 12 \sim 32mm tape width is available
Up to 2 sets of Tape In can be installed in parallel for tape width 12 \sim 16mm
 - Tape Output : Options of heat sealing mode & pressure sealing mode are available
Accept tape with 12 \sim 32mm tape width

- Control
 - Built-in Controller : PC-based control with Windows XP
 - Display : 19" LCD monitor
 - Data entry : Keyboard / mouse

- Power & Air
 - Power : AC voltage : 200 \sim 245V / 50-60Hz Single phase. Power consumption : 1.3 KVA
 - Air : Air pressure : 0.6 MPa (~ 6.0 kg/cm²). Air consumption : 25 liter/min.

- Dimension
 - Base Unit W x D x H : 1005mm x 1070mm x 1600mm
 - Base + Tray I/O W x D x H : 1005mm x 1610mm x 1600mm
 - Base + Tube I/O W x D x H : 1005mm x 1780mm x 1600mm
 - Base + Tape I/O W x D x H : 1005mm x 2045mm x 1600mm

- Weight
 - Base Unit : ~ 470 kg