ONYX29
SMT Production Rework & Assembly

Enhanced Capability in Part Handling, Micro-Force Pick & Place Control, Dispensing, Alignment, Placement Accuracy, Preheat and Precision Reflow Control

High Volume Rework
- Select any stored component location. Any or all process sequences can be chosen and automatically applied.
- Operator can choose any sequence for single or multiple assemblies; multiple sites with multiple or single processes; single site with multiple or single processes.
- Operator identifies fiducial and all processes are executed without nozzle positioning.

Delicate/Fine Pitch Component Handling
- Placement accuracy of 9 microns (0.0003") @ 3 sigma.
- Closed-loop force sensing placement system (four load cells) places device with 10 gram force. Real time digital display indicates actual and programmed value.
- Vacuum sensor insures component removal without solder displacement to adjacent areas.
- Component shuttle allows multiple (waffle tray, tape or custom) or single device pick up/drop off.

Powerful, Closed-Loop Process Heating

BOTTOM HEATER
- Thermally balanced heating elements provide ultra-fast heat up with excellent thermal uniformity.
- Black ceramic, high-emissive coating dramatically increases radiant energy, providing the capability to preheat high thermal mass and lead free boards to the significantly higher preheat temperature (140°C) required for lead-free rework.
- Uniform, overall heating minimizes PCB warpage and localized thermal stress of upper heating.
- Closed-loop board temperature sensor monitors and triggers board preheat to target temperature regardless of machine or board thermal conditions. Eliminates taping thermocouple to the assembly.
- Board cooling system provides fast, controlled cool down of component to control time over reflow. Promotes process repeatability and stabilizes machine conditions.

UPPER HEATER
- High Efficiency, 1000 watt patented element provides stable, precise heat to maintain uniform & repeatable joint temperatures.
- Closed-loop mass flow controller monitors and regulates precise air flow.
- Temperature and flow rate are auto-calibrated at multiple set points insuring machine to machine repeatability.
### Extraordinary Software Capabilities
- Simple, fast and easy first run, automatic thermal profiling with on-the-fly adjustments. Removal, site cleaning and replacement programs are automatically built and immediately ready to run.
- Automatic process sequences with site pad cleaning x, y and z motion of programmed pattern.
- Advanced motion, heating and peripheral routines may be added to any program sequence.

### Large, Clear Image for Component Alignment
- Multi field of view automatically indexes to any of the four device corners or center.
- Independent pad (white) and component pad (green) lighting with intensity, brightness and contrast control adjustment. High magnification with electronic zoom (automatic).
- Can handle components up to 3.0” (75mm).

### Site Pad Cleaning
- Standard & Micro site clean nozzles provide capability for any assembly to remove residue solder using a non-contact composite vacuum tip. Ultra Micro contact tip for micro assemblies.
- Air flow heats the pads after component is removed.
- Pattern programmed with automatic length and width control. Vacuum height sensor automatically adjusts to the safe tip height above the pads regardless of residual solder deposit or board thickness.
- Promotes clean, uniform pads for replacement device or uniform solder deposit, insures no component misalignment or uneven solder deposits.
- Enhances paste dipping or dispensing, flux dipping or dispensing, and paste stencil usage.
- Damaging effects of manual processes (wick, desoldering tools) can cause pad, mask and assembly damage due to scraping and overheating by operator are eliminated.

### Integrated Dispensing System
- Pattern programmed software controls volume of solder dots or lines down to 0.010” diameter.
- Placement accuracy is within 9 microns @ 3 sigma.
- Time-Pressure system with programmable dispense time, depart height, speed and transfer height.
- Can be used with solder paste, epoxy, under fill or flux.

### Recommended Options
- **Pivoting IR Sensor w/Laser Pointer** (0029.11.041) - Provides process repeatability by insuring that the board is at the exact same target temperature each time before localized reflow begins.
- **Component Shuttle, Auto V2** (0029.02.042) - Provides a safe, repeatable location for component pick up, flux dipping and drop off away from the heated work area.
- **Site Cleaning System** (0029.03.012) - Includes standard and micro nozzles for complete removal of residual site solder on virtually any site.
- **Universal Insertion Tool** (AU4LGA45SQ) - Mechanically self-centers any square device for accurate pick up. Used in conjunction with automatic component shuttle.
- **Direct View Camera** (0029.04.041) - Provides high magnification site viewing including the ability to verify when component reflow has occurred.

### Other Options
- **Ergonomic Workstation with CPU Holder** (1003.05.010)
- **Monitor Stand Option for Workstation** (1003.05.005)
- **Nozzle Stand Option for Workstation** (1003.05.006)
- **Locking Drawer Option for Workstation** (1003.05.007)
- **70mm Topside Clearance** (Std is 30mm) (0029.01.052) Provides increased top side clearance for assemblies with vertical daughter cards or tall devices that exceed the standard 30mm (1.2") top side clearance.
- **Fume Extraction Manifold** (300.00.547) - Removes flux vapors from the environment for health and safety.
- **Dispensing System** (0029.08.010) - On-machine dispensing of flux, solder paste, adhesive, epoxy or underfill.
- **Paste-On-Device Stencil Adapter** (0024.24.111) - Component specific stencil applies solder paste directly to the component spheres.
- **Lead Free Rework Training Kit** (1023.02.010)
- **4 Additional Thermocouple Ports** (300.00.504)
- **Recommended Spare Parts** (0029.00.040)
- **Thermocouple Organizer** (0024.90.047)