

Model **KISS-104**
“Keep It Simple Soldering”
In-Line 18” x 24” PCB Platform



Made in America:

FEATURES:

The **KISS-104** is a fully configured **In-Line SMEMA compatible** Selective Soldering Machine ready to produce your product. The **KISS-104** includes the following standard features:

- Safety cover with internal lighting and fume vents.
- Universal PCB edge conveyor with program controlled width adjustment, positive PCB location and PCB flattening.
- Solder pot and pump assembly.
- Set of “Bullet” nozzles (7 nozzles, 3mm up to 25mm dia.).
- Heated Nitrogen to the solder nozzle.
- Windows XP O/S with simple on or off line programming.
- Rapid setup and time to “first production” using CAD importing or on the machine “teach” functions.
- Programmable flux deposition.
- Programmable solder wave flow rate.
- Automated in process solder wave height check / adjust.
- Automated solder pot level check and fill.
- Fiducial alignment prior to starting a process.
- Set the time/temp profile for each individual component type for maximized process control and TAKT time.
- Absolute control over all critical process parameters:
 - Solder temperature interlocked to within 2 degrees C.
 - Height, and travel speed of the solder wave.
 - Programmable initial pre-heat soak time
- Will Process PCBs 18” x 24” unassisted (flux and solder).
- Step and repeat capability in both X and Y axis for multiple boards in a panel.
- Set-up kit, on site installation and training included.
- One year guarantee covering the entire machine and two years for the solder pot and pump assembly.

ADVANTAGES:

The **KISS-104** maintains the PCB stationary during the soldering process preventing components from toppling over causing “unset” inter-metallic fillets. The **KISS-104** is a fully automated selective soldering machine using the proven “traveling mini-solder wave”. The **KISS-104** It is used to flux and solder through hole components on SMT boards within close proximity of adjacent components. The **KISS-104** overcomes the limitations of operator dependent soldering with a truly flexible automated flux application and molten solder delivery system.

The **KISS-104** couples high throughput with precise process controls. The programmable features provide the tools to set all process parameters, including immersion depths, pre-heat dwells, travel distances and speeds, solder temperature and wave height. Once set, the system will repeat precisely.

The **KISS-104** will out produce 6 or more operators soldering with an iron while significantly increasing the solder joint quality and to a predictable schedule.

“You can expect a ROI of 8 months or less”

PROCESS OVERVIEW:

The automated process begins with the PCB/panel entering the **KISS-104** on the edge rail conveyors built into the system in normal SMEMA fashion. The PCB is clamped flat into location. The cycle begins by applying flux precisely to all the sites to be soldered. Next the mini solder wave is automatically moved under the components to be soldered. The solder nozzle raises to just below the site allowing the heated nitrogen to pre-heat the site and activate the flux. The nozzle raises up further immersing the first of the leads, dwelling for initial “soak”. The nozzle travels over the entire site leaving perfect top and bottom side fillets at each pin. At the completion of the travel the solder pot lowers and moves to the next site. After completing all sites the pot returns to the start position ready for the next cycle while the completed PCB/panel conveys out and the next PCB/panel conveys in.



SOLDER POT: (for lead and lead-free alloys)

The lead-alloy solder pot wetted surfaces are constructed of 316 stainless steel. The optional Lead-Free alloy solder pots are constructed of Titanium to withstand attack from aggressive tin rich alloys. The heaters are sized to bring the solder safely to temperature within an hour. Re-circulation of solder is accomplished via a programmable motor coupled to a precision impeller assembly that delivers the precise and consistent volume of solder to the nozzle. The solder distribution system is designed to minimize dross build up while providing an extremely consistent and repeatable solder wave shape.

A heated nitrogen blanket captured within the enclosed solder pot inerts the molten solder surfaces minimizing dross. The heated nitrogen surrounds the solder nozzle and solder site as the solder wave contacts the terminals minimizing icicles and solder bridges while providing an inerted return of the solder back into the pot.

The solder temperature is interlocked within $\pm 2^{\circ}\text{C}$ of set point. The capacity of the solder pot ensures sufficient solder mass for even the largest assemblies.

The nozzles are magnetically fixed and can be exchanged in seconds. A full set of "Bullet Nozzles" are supplied with the system. These are sufficient for most applications. Additional "Wave Nozzles" and special purpose nozzles are available enabling selective soldering of wide patterns (multiple rows) in close proximity to previously soldered components without danger of reflowing them (see the KISS nozzle data sheet).

PROGRAMMING:

The initial programming is accomplished by one of two methods. At a desktop or on the machine..... At your desktop import the PCB CAD file into the KISSware program. Pick the solder nozzle size (this becomes your cursor). Choose the start/stop positions for all devices to be soldered. The process path becomes highlighted and script is automatically created for you. Circular or angular interpolation allows the soldering of large round arrays in a spiral pattern and connectors not perpendicular to the X-Y plane.

Optionally, use the set up camera viewed on the monitor and joystick function on the keyboard to set the flux and solder pattern in real time. Usually an average board can be programmed within 15 minutes. You can fine tune the X,Y and Z positions, speeds, solder wave height and other parameters to perfect the process.

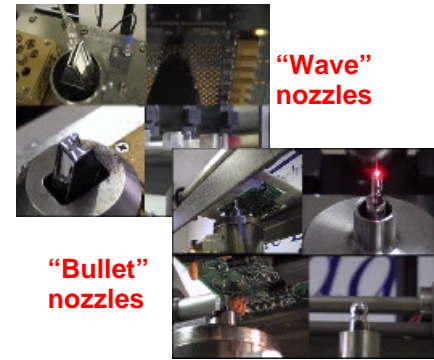
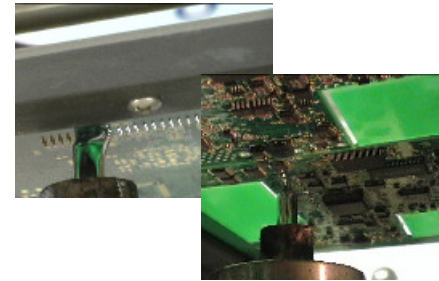
Start the cycle.

OPTIONS: (see individual data sheets)

- In-Line components placement, fluxing and preheating modules for fastest TAKT...Full line available
- Titanium solder pot for lead-free alloys
- Additional solder nozzles
- In process top side pre-heat with pyrometer controls
- Drop jet spray head
- De-bridging Nitrogen Jet
- Closed loop position feedback with linear encoders



"The soldering process"



SPECIFICATIONS:

PCB Panel Size

Minimum	Maximum
2" x 2"	18" x 24"
(18" x 42" with manual step over)	

Safe "Keep Away"

(distance to adjacent pads) 1mm

Motion

- Z-Axis
Accuracy/Repeatability $\pm 0.002"$
Speed 0-40 inches/min
- X and Y Axis
Accuracy/Repeatability $\pm 0.002"$
Speed 0-250 inches/min

Solder Pot

- Temperature
PID proportioning (0-400°C)
 $\pm 2^{\circ}\text{C}$
- Solder Capacity
30 lbs.
- Pump
PC controlled

Controls

PC with Windows XP O.S.

Physical

- Dimensions
54" wide x 40" deep x 52" high
- Weight
625 lbs.

Facilities

- Power
120VAC/1 Ph/60 Hz 15 amps
- Nitrogen
15-50 CFH @ 60-70 PSI
- Exhaust
350 CFM recommended

CERTIFICATION of COMPLIANCE:

OSHA, NEC, CE, UL, ULC

**Call for a free video of the KISS
... and the selective**