



*Made in America*

The **KISS-103IL** is a fully configured *In-Line SMEMA compatible* Selective Soldering Machine ready to process “**LARGE**” PCBs. The **KISS-103IL** includes the following:

**Standard Features:**

- SMEMA edge conveyor with program controlled width adjustment, positive PCB location and PCB flattening
- “**Super Quick**” motion for fastest processing times
- Windows 7 O/S with the interactive SWAK on machine programming interface (see the SWAK data sheet and video) Rapid setup and time to “first production”, usually within 10 minutes
- **Automated Fiducial Correction**
- Dual monitors (great for simultaneous video feed from cameras)
- Step and repeat capability in both X and Y axis for multiple boards in a panel
- Lead alloy solder pot and pump assembly included—lead free alloy (all titanium) and HMP alloy pot and pump available
- **Full set of 7 “Bullet Nozzles”**
- Heated nitrogen to the solder nozzle
- Programmable flux deposition
- Programmable solder wave flow rate
- Programmable Solder Pot Timer
- Two (2) process witness cameras
- Offline programming software
- Automated in process solder wave height check / adjust
- Precision KFS-SP atomizing flux applicator
- Automated solder pot level check and fill
- 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 10°C
  - Height and travel speed of the solder wave
  - Programmable initial pre-heat soak time
- Set-up kit, on site installation and training included
- One year warranty covering the entire machine and two years for the solder pot and pump assembly

# Model **KISS-103IL**

“Keep It Simple Soldering”

## **In-Line Selective Soldering** **24” x 18” Platform** (600mm x 450mm)

**Advantages:**

The **KISS-103IL** performs the soldering of “through hole” components to PCBs in a “**lights out**” in-line process while maintaining the PCB stationary which prevents components from toppling over causing “unset” inter-metallic fillets. The **KISS-103IL** is a fully automated selective soldering machine using the proven “traveling mini-solder wave”.

The **KISS-103IL** is used to flux and solder through hole components on SMT boards within close proximity of adjacent components. The **KISS-103IL** overcomes the limitations and high labor costs of operator dependent soldering with a truly flexible automated flux application and molten solder delivery system.

The **KISS-103IL** 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-103IL** 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 4 months or less”**

**Process overview:**

The automated process begins with the PCB/panel entering the **KISS-103IL** on the edge rail conveyors built into the system in normal SMEMA fashion. The PCB is clamped flat into location. The **Automated Fiducial Correction** identifies the location of 2 points on the board and resets the zero start position. 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, downstream.

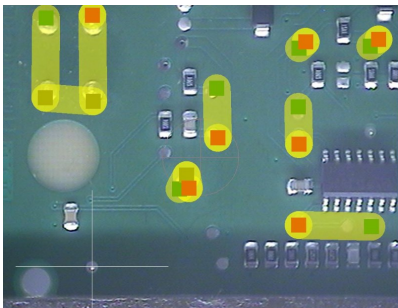


## Programming:

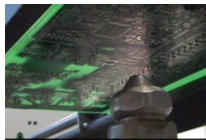
The programming is accomplished by one of two methods on the machine or with the optional Offline Teach programming interface software. On the machine use the set-up camera viewed on the monitor and point-and-click method to set the flux and solder pattern in real time. Usually an average board can be programmed within 10 minutes. You can fine tune the X,Y and Z positions, speeds, solder wave height and other parameters to perfect the process.

Optionally, at your desktop import a JPEG (photo) or the Gerber file into the Offline Teach 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 (see the SWAK data sheet and video).

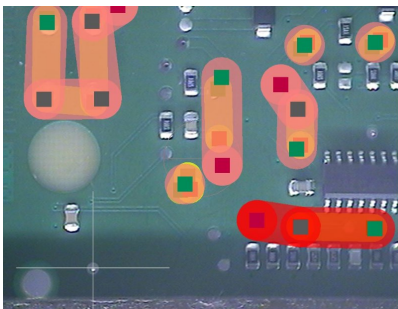
**Set the zero point, then choose the flux width and solder nozzle and "paint" the process paths. It is that easy.**



**Programming the flux paths**



**Applying the flux**



**Programming the solder paths**

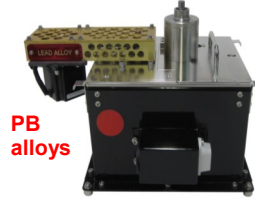


**Soldering the components**

## Options: (see individual data sheets)

- Additional solder pot/pump assemblies for Pb, Sn or HMP alloys
- Additional "Bullet" or "Wave" solder nozzles and W-75 wide wave nozzle for mass wave soldering
- In process top side pre-heat with pyrometer controls
- Drop Jet precision flux applicator (for no-clean processing)
- De-bridging Nitrogen Jet
- Closed loop position feedback with linear encoders
- Solder pot exchange cart with pot warmer controller
- Dual nozzle solder pot/pump assembly
- 6 channel data logger preheat profiler
- Barcode reader (over conveyor)
- N2 (bottom side) Spot Preheat

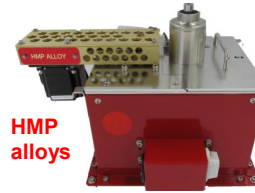
## The KISS solder pots (See the KISS-SPA data sheet)



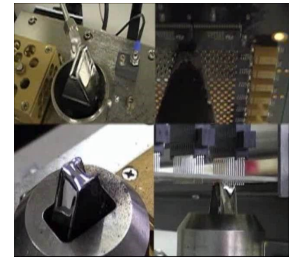
**PB alloys**



**PB free alloys**



**HMP alloys**



**"Wave" nozzles**



**"Bullet" nozzles**

## KISS-103IL Specifications:

### PCB Panel Size

Minimum	Maximum
2" x 2" (50mm x 50mm)	24" x 18" (600mm x 450mm)

### Safe "Keep Away"

(distance to adjacent pads) 1mm

### Motion

- Z-Axis  
Accuracy/Repeatability +/- .002"  
Speed 0-3 inches/sec
- X and Y Axis  
Accuracy/Repeatability +/- .002"  
Speed 0-4 inches/sec

### Solder Pot

- Temperature  
PID proportioning (0-400°C) ± 2°C
- Solder Capacity  
30 lbs. (14 kilos)
- Pump  
PC controlled

### Software

Windows 7 O/S and SWAK programming interface

### Physical

- Dimensions  
67 wide x 57" deep x 54" high  
(1701mm wide x 1447mm deep x 1371mm high)
- Weight (dry)  
950 lbs. (431 kilos)

### Facilities

- Power: Domestic  
120VAC/1 Ph/60 Hz 15 amps
- International  
208-230VAC/1 Ph/60 Hz 8 amps
- With Pre-heat  
208-230VAC/1 Ph/60 Hz 30 amps  
additional outlet
- Air  
90 (minimum) to 100 (maximum) PSI
- Nitrogen  
99.999% pure, 30-50 CFH @ 60  
(minimum) to 100 (maximum) PSI
- Exhaust  
250 CFM recommended  
(2) 4" dia. Take-offs at rear panel

## Certification of compliance:

OSHA, NEC, CE, UL, ULC

**Call for a free video of the KISS machines and the selective soldering process**