

# Cerno™ Series: Model 103IL

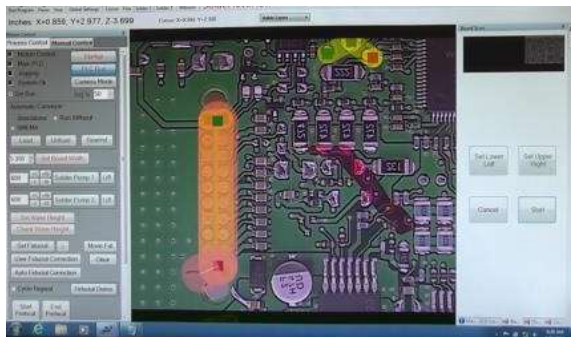
## Selective Soldering System with Advanced Process Controls

### Features and Benefits

- Selective soldering of printed circuit boards as large as 610 x 457 mm (24.0 x 18.0 in.)
- Interchangeable solder pots and pumps compatible with tin-lead, lead-free and HMP solder alloys
- Choice of single selective solder nozzle, dual selective nozzles with independent control or 75 mm wide wave soldering nozzle
- SWAK-OS graphics-based programming and machine control software enables fast and straightforward program creation
- Optional in-line flux and preheat module with concurrent fluxing and preheating provides increased throughput

The Cerno™ 103IL is a robust selective soldering system delivering an exceptional combination of versatility, productivity and value. The Cerno™ 103IL has many unique features, including high speed Z-axis motion for faster processing time and reduced soldering cycle.

**Flexibility.** With its feature rich, graphics-based programming and machine control software, the Cerno™ 103IL is specially designed for demanding selective soldering applications. Set-up and time to first article is significantly reduced to within 10-15 minutes. The SWAK-OS software features seamless fiducial recognition, live teach cameras, real time data collection, SQL backend data extraction and complete FIS capability for shop floor integration.



SWAK-OS graphics-based programming software



**Soldering Technology.** With its flexible configuration, the Cerno™ 103IL is a versatile selective soldering system capable of processing tin-lead, lead-free or HMP solder alloys. Interchangeable solder pots and pumps are available with either single selective solder nozzle, dual selective nozzles with independent control or 75 mm (3.0 in.) wide wave soldering nozzle. The nitrogen inerted dual nozzle system enables the use of multiple size nozzles within the same program further enhancing flexibility and productivity.

**Process Control.** Nordson SELECT's closed-loop rotary encoders and other advanced process control capabilities have been incorporated into the Cerno™ 103IL, enhancing solder quality, precision and yield capabilities.

**Value.** With a reputation for innovation, comprehensive process solutions from Nordson SELECT ensure a maximum return on investment and low cost of ownership. From initial process development through full-scale production, you are supported by our experienced worldwide engineering, applications development and technical service network.

## Cerno™ 103IL Features

The Cerno™ 103IL is a fully configured SMEMA compatible selective soldering system and is a reliable and cost-effective solution for many demanding through-hole and SMT mixed-technology soldering applications including:

- Printed circuit board assemblies and other solderable substrates
- Interchangeable tin-lead and lead-free soldering

**Interchangeable solder pots** and pumps for tin-lead, lead-free and HMP solder alloys



Single solder nozzle    Dual solder nozzles    75 mm wave nozzle



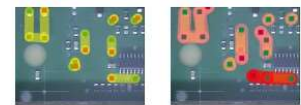
Standard atomizing spray flux applicator and available FluxJet precision drop-jet dispenser

**In-line flux and preheat module** available with concurrent fluxing and preheating for increased throughput

**Dual monitors** for simultaneous viewing of process camera and all soldering functions



**SWAK-OS** graphics-based programming and machine control software



Seamlessly creates true-to-scale image of entire board    Paint flux and solder paths to create and edit programs

**SMEMA edge conveyor** with program controlled width adjustment and PCB flattening

### Standard Features

SMEMA edge conveyor with program controlled width adjustment, positive PCB location and PCB flattening  
 Conveyor direction left-to-right  
 High speed Z-axis motion  
 Closed-loop rotary encoders  
 Atomizing spray flux applicator  
 Tin-lead solder pot and pump assembly with full set of quick change magnetically coupled bullet nozzles  
 Automatic solder pot level monitoring and fill system  
 Automatic wave height monitoring and adjust system  
 Solder alloy verification system  
 Heated nitrogen inerting system  
 Programming and fiducial alignment look-up camera  
 Dual process witness cameras  
 SWAK-OS graphics-based programming and machine control software

- Automatic fiducial alignment
- Board warp compensation
- On-board help videos
- Remote machine diagnostics
- Complete FIS capability

Off-line programming software  
 Dual monitors

### Optional Features

Right-to-left conveyor direction  
 FluxJet precision drop-jet dispenser  
 In-process flux verification system for drop-jet  
 Dual flux heads, 2 atomizing spray heads, 2 drop-jet flux dispensers or one of each  
 Topside infrared preheater with closed-loop control  
 In-line flux and preheat module with concurrent fluxing and preheating  
 Automatic solder nozzle tinning system  
 Lead-free solder pot and pump assembly (titanium)  
 HMP solder pot and pump assembly  
 Dual nozzle solder pot and pump assembly, tin-lead or lead-free (titanium)  
 3-25 mm bullet nozzles or 4-25 mm mini-wave nozzles  
 75 mm (3.0 in.) wide wave nozzle and pump assembly, tin-lead or lead-free (titanium)  
 Solder pot exchange cart with warming controls  
 Bottom-side nitrogen spot preheater  
 Nitrogen de-bridging knife  
 Single monitor  
 Six channel thermal data logging system  
 Barcode reader

# Specifications: Cerno™ 103II

## Motion System

Z accuracy	±50 µm (0.002 in.)
Z repeatability <sup>(1)</sup> :	±50 µm (0.002 in.), 3 sigma
Z velocity:	0.15 m/s peak (6 in./s)
X-Y accuracy	±50 µm (0.002 in.)
X-Y repeatability <sup>(1)</sup> :	±50 µm (0.002 in.), 3 sigma
X-Y velocity:	0.2 m/s peak (8 in./s)

## Computer

PC with Windows® operating system

## Software

SWAK-OS graphics-based programming and machine control software

## Solder Pot Capacity and Weight

Capacity <sup>(2)</sup>: Approx. 13.6 kg (30.0 lbs.)  
Total weight of tin-lead solder together with solder pot and pump assembly <sup>(2)</sup>: Approx. 24.0 kg (53.0 lbs.)  
Total weight of lead-free solder together with solder pot and pump assembly <sup>(2)</sup>: Approx. 21.3 kg (47.0 lbs.)

## Solderable Area (X-Y)

Single bullet, dual bullet or mini-wave nozzles <sup>(3,4)</sup>:  
Max. 610 x 457 mm (24.0 x 18.0 in.)  
Min. 50 x 50 mm (2.0 x 2.0 in.)

## Board Handling Capability

Max. board size: 610 x 457 mm (24.0 x 18.0 in.)  
Min. board size: 50 x 50 mm (2.0 x 2.0 in.)

## Conveyor

Max. board/carrier length: 610 mm (24.0 in.)  
Min. board/carrier length: 50 mm (2.0 in.)  
Max. board/carrier width: 457 mm (18.0 in.)  
Min. board/carrier width <sup>(4)</sup>: 50 mm (2.0 in.)  
Max. board/carrier thickness: 7.6 mm (0.3 in.)  
Max. overboard clearance: 102 mm (4.0 in.)  
Max. underboard clearance: 102 mm (4.0 in.)  
Edge clearance <sup>(5)</sup>: 3 mm (0.12 in.), edge conveyor including on-rail clamps  
Transport height: Conforms to SMEMA standard for conveyor height; height adjustable from 940-965 mm (37.0 - 38.0 in.) from floor to bottom of board  
Load capacity <sup>(6)</sup>: 4.5 kg (10.0 lbs.)  
Operation modes: Automatic (SMEMA), manual or pass-through

## Facilities Requirements

System footprint: 1701 x 1421 mm (66.9 x 55.9 in.)  
Air supply: Less than 10 CFH @ 90-100 psi  
Power (mains) <sup>(7)</sup>: Power supply accommodates 120VAC, 60 Hz, 15 A standard or 208/220-240VAC, 60 Hz single phase, 15 A optional 50 A with topside preheating <sup>(8)</sup>  
Nitrogen <sup>(9)</sup>: 99.999% pure @ 60-100 psi, 30-60 CFH consumption  
Ventilation: Rear 250 CFM recommended, two 100 mm (4.0 in.) dia. ducts  
System weight <sup>(10,11)</sup>: 431 kg (950 lbs.)

- (1) Repeatability is measured at full rated system speed.
- (2) Solder capacity and total weight of solder pot and pump assembly varies depending on solder alloy.
- (3) Substrates as small as 50 x 50 mm (2.0 x 2.0 in.) are possible without the need for fixturing or other tooling.
- (4) Contact factory regarding smaller boards/carriers.
- (5) Edge conveyor conforms to SMEMA standards.
- (6) Total weight of all parts on conveyor at any one time. Contact factory regarding requirements for greater load capacity.
- (7) Electrical power varies depending on configuration.
- (8) Topside preheating only available with 208/220-240VAC, 60 Hz, single phase power supply.
- (9) Nitrogen consumption is solder nozzle dependent and machine configuration dependent.
- (10) System weight varies depending on configuration.
- (11) Configuration dependent. Other configurations may be available. Contact Nordson SELECT.

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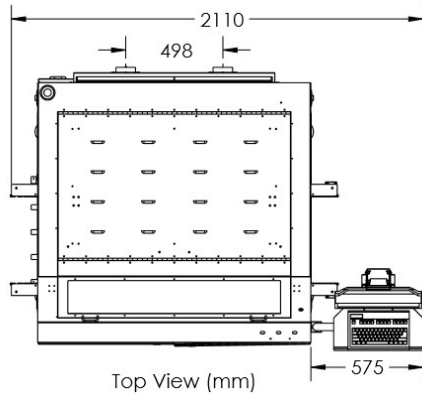
## Standards Compliance

SMEMA

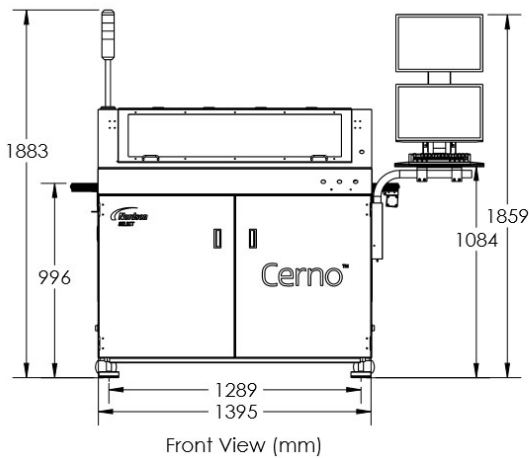
**Additional options may be available: contact Nordson SELECT for further information.**

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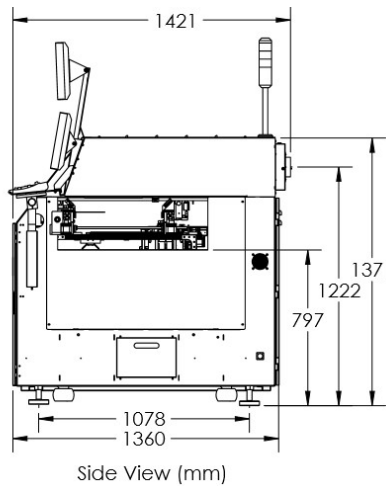
Dimensions are in millimeters



Top View (mm)



Front View (mm)



Side View (mm)

**For more information, speak  
with your local representative  
or contact your regional office.**

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**Published 2017-27-11**