

# Inline Inverter Module

For Conformal Coating Applications

## Features and Benefits

- **Flexible design allows the inverter to be installed in a variety of configurations to meet assembly process requirements**
- **Automatic one- or two-sided conformal coating reduces board-handling requirements and increases yield**
- **Safety interlocks stop operation when door is opened**
- **A sensor ensures that exhaust air remains at prescribed levels**
- **Compact footprint conserves valuable production floor space**
- **Easy width adjustment accommodates a wide variety of board sizes**
- **Inverter module PLC controller monitors board location, inverter operation, and solvent exhaust**
- **SMEMA-compatible interface**

The Inline Inverter module for one- or two-sided selective conformal coating of printed circuit boards (PCBs) maximizes productivity and yield, conserves factory floor space, and reduces board-handling requirements. Available for integration with the Select Coat® SL-940E and Century® conformal coating systems, the inverter can be configured for invert-and-pass-through, invert-and-return, and pass-through board processing.

### Invert-and-pass-through operation

For high-volume, two-sided PCB coating, the inverter module is located between two conformal coating systems for simultaneous processing of two boards. The circuit board and pallet are loaded onto the conformal coating system conveyor and board side one is coated. The board is then conveyed into the inverter module, flipped, and conveyed to a second conformal coating system for coating side two. The board then goes to the curing module.

### Invert and return operation

For mid-volume invert-and-return operation, the board moves through the inverter mechanism

located upstream of a single conformal coating system. The board is conveyed into the dispensing system for coating side one. The board is then conveyed back to the inverter module, flipped, and returned to the coating system for coating side two. The board is then conveyed to the curing module.

### Pass-through operation

When process assembly requirements call for one-sided conformal coating of PCBs, the inverter module is easily programmed to allow boards to pass through without inversion.

### Process monitoring

Throughout the coating process, the Programmed Logic Control (PLC) module monitors inverter operation, board location, and exhaust ventilation for solvent-based conformal coatings. The unit is equipped with a differential pressure monitor that immediately stops the system if ventilation falls below prescribed levels. Safety interlocks prevent the door from opening during operation.



## Specifications: Inline Inverter Module

|                          |   |
|--------------------------|---|
| Cycle time (1 rotation): | 10 seconds  |
| Function control:        | PLC – Allen Bradley Micrologix 32 controller  |
| Board length:            | 80 to 559 mm (3.15 to 22 in.)   |
| Board width adjustment:  | 50 to 508 mm (1.97 to 20 in.) – front rail fixed                                    |
| Board component height:  | 90 mm (3.5 in.) above or below board  |
| Board/pallet weight      | 4.0 kg (8.8 lbs.) maximum   |
| Board/pallet thickness:  | 0.6 mm (0.02 in.) minimum<br>2.5 mm (0.1 in.) maximum                               |
| Board/pallet warpage:    | 3 mm (0.12 in.) maximum over entire board length                                    |
| Transport edge width:    | 3 mm (0.12 in.) per side  |
| Conveyor height:         | 914 to 991 mm (36 to 39 in.), SMEMA   |
| Module dimensions:       | Length: 652 mm (25.7 in.)<br>Width: 962 mm (37.8 in.)<br>Height: 1340 mm (52.7 in.) |

### Facilities Requirements

|                                     |  |
|-------------------------------------|--|
| Voltage supply:                     | 120 VAC/60 Hz, 230 VAC/50 Hz, 2 A, 1 PH  |
| Power consumption:                  | 150 VA maximum   |
| Air pressure supply:                | 400 to 600 kPa (58 to 87 psi, 4 to 6 Bar)  |
| Pneumatic                           | 0.5 SCFM compressed air at 586 kPa (85 psi, 6 Bar); clean, filtered air          |
| Weight:                             | 140 kg (309 lbs.) typical  |
| Ventilation air (customer-supplied) | 0.047 m <sup>3</sup> /sec @ 25 mm water column (100 SCFM @ 1.0 in. water column) |

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