

# Laser Fan Width Control

Improved Repeatability for Conformal Coating Applications

## Features and Benefits:

- Automatically verifies fan width using laser beam for repeatable coating patterns
- Compensates for viscosity variations during the coating process
- Offers programmable width verification and correction frequency
- Multiple, programmable fan widths available using ECXP for flexible fluid delivery
- Provides data logging of production parameters for statistical process control



Temperature variations and other environmental factors can affect the viscosity of fluid coating materials, changing material flow and fluid fan width. Laser Fan Width Control provides closed-loop monitoring of the conformal coating process. The system automatically verifies and adjusts the fan width prior to and/or after the coating operation. Through the use of a laser sensor, the system “looks” at the fan pattern, monitors the results, and automatically adjusts fluid fan width (coating pass width)

Accuracy is ensured by design. The laser beam makes precise measurements while positioned outside the work cell (dispense area). This dramatically reduces the chance of contamination. Autocalibration is an additional standard feature and helps to compensate for day-to-day changes during operation.

There are two programmable modes of the Laser Fan Width Control: Quick Check and Control Width.

**Quick Check:** The Quick Check feature measures the fan width and will automatically adjust the fluid pressure if the measured fan width is different than the target fan width and within the error tolerance. If the measured fan width is outside of the user-

defined error tolerance, a variety of actions can be taken, depending on the user programmed instructions. For example if the Quick Check measures a fan width outside the error tolerance, an error message is displayed and the system can be programmed to either execute a Control Width, then continue coating, or to halt production.

**Control Width:** During initial setup or if the width measured by the Quick Check is outside of the error tolerance, a Control Width is done. A Control Width will automatically correct the fan width with a pressure change, logging the information and continue to coat.

Multiple fan widths can be programmed through Nordson ASYMTEK’s Easy Coat® for Windows XP® (ECXP) software. If statistical process control is required, ECXP’s log files and event manager record process variables, including fan width and pressure adjustment for post-process analysis.

Laser Fan Width Control can be retrofitted to existing conformal coating systems that are equipped with the Film Coater non-atomizing dispensing modules.

# Specifications: Laser Fan Width Control

## How it Works:

- During setup, the user teaches the position of the nozzle with respect to the laser beam while centered over the drain pan. Then the user specifies a desired fan pattern width.
- Fan Width Controls are typically programmed at the beginning of a shift, after normal maintenance or as an error procedure for a Quick Check that failed. During a Fan Width Control, the applicator is moved into position into the laser sensor or beam, and the center and tip of the coater nozzle are found. The laser sensor monitors the coating spray pattern width as fluid is dispensed into the drain pan.
- The software then sends a signal to the pressure controller, increasing pressure to the fluid regulator until the sensor light beam is broken by the spray pattern.
- As the fan pattern breaks the beam, the laser sensor sends a signal to the controller, indicating that the fan spray pattern has reached the required width. Fluid pressure is set and saved.
- Next, the applicator is moved as it dispenses to either side of the laser beam to confirm the symmetry of the pattern with respect to the centerline of the applicator. If the pattern fits within the software-configurable tolerance, the

board is then coated. Laser Fan Width Control is easily programmed with ECNT to monitor fan width per board, or in user-defined intervals.

- During production, the Quick Check feature is used to monitor the fan width and make pressure adjustments 'on the fly'. The Quick Check feature takes less than 2 seconds and will ensure that the fan pattern is within the user specified tolerances before coating a board.
- The control box is located inside the workstation (shown in photo below)



## Supported Systems:

Select Coat SL-940E/SL-941E Conformal Coating Systems

## Fluid Delivery Method:

SC-280C/SC-280N Film Coater Applicator

SC-204/SC-104 Film Coater Applicator

## Software:

Easy Coat® for Windows XP®

## Other Standard Features:

- Manual or Automatic Fluid Pressure Mode
- Digital Fluid Pressure Display
- Auto Threshold Calibration
- Dirty sensor signal capability.



Amplifier Display



Sensor head

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