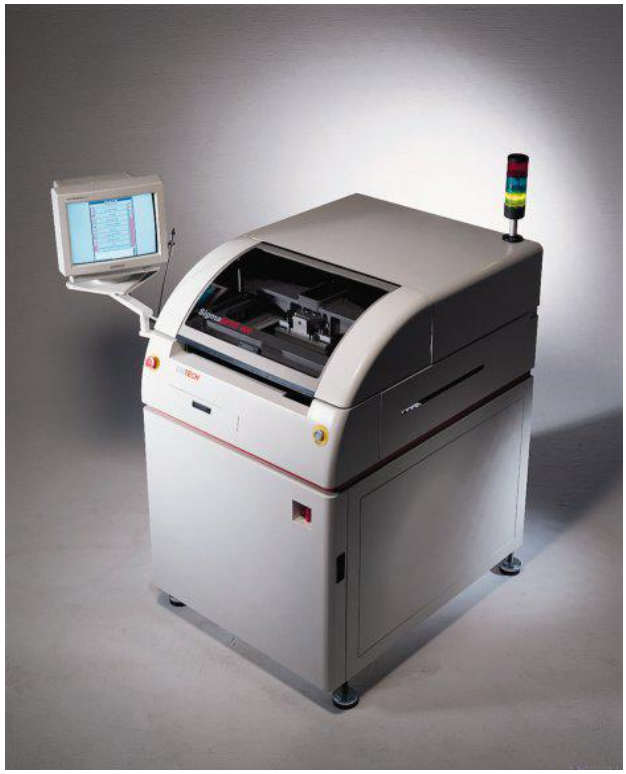
# Ultra Print - 400 Full Auto Inline Stencil Printers

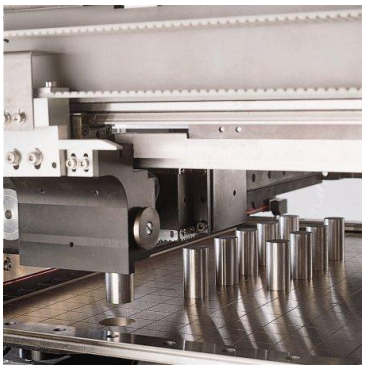


Performance: The UP-400's are built for the most demanding production requirements. Designed around the industry-standard 20-inch stencil, the printer achieves a remarkably compact footprint, resulting in exceptional productivity per square foot.

Exhaustive testing of all machine functions coupled with stringent quality procedures provides continuous 24-hour up time.

Precision Alignment • Fast Setup • Ease of use • High Productivity

- Closed-loop dual-beam optics vision system
- Full process parameters
- Configurable warning beacon
- Automatic paste dispense with 'low material' sensor
- Power-assisted stencil load
- Vacuum stencil cleaning with 'low solvent' and 'paper out' sensors
- Automatic tooling management system
- SPC data collection and reporting
- Environmental control unit - temperature and humidity
- Temperature control unit with humidity
- Multi-language software support
- Multiple-line interface options
- Transfer height options
- Variable conveyor direction, front/rear dedication, and
- motorized/manual option



## Auto Programmable

Tooling setup, conveyor width adjustment, and board stop position are all programmable. The IVR head automatically selects and positions tooling posts accurately for optimum support during printing.

Tooling posts can be placed anywhere within the print area to avoid underside components or support critical areas of the board. Automatic setup procedures require no manual intervention, reducing the risk of operator errors and significantly increasing overall productivity.

The tooling software eliminates the possibility of board damage and production errors by precision management of tooling throughout the configuration process.

## Powered Stencil Load/Unload

Power assisted loading of the stencil reduces the risk of damage, speeds setup and assists accuracy and repeatability.

## Integrated Vision Robotics

Integrated Vision Robotics (IVR) uses a single roving camera with dual plane optics, giving perfect board/stencil alignment every time. IVR is flexible and can be tailored exactly to production needs. Alignment can use regular product features or dedicated fiducials. Advanced vision software achieves high precision registration, and is supported on leading hardware platforms including Matrox and Cognex. Features of IVR include image recognition, vision system training and alignment calibration.

## Selective Alignment Strategy

Multi-point alignment compensates for stencil stretch or positional variations. Dynamic software supports alternative alignment strategies, delivering ultra-fine capability for every application.

## High Resolution CCD image

Board / Stencil alignment depends on the quality of the CCD images. The IVR system of the UP-400 / AVX-400 uses a high-resolution image (512 x 512 pixels) to give excellent definition and precision alignment for perfect print quality.

## Specification:

| | |
|---|---|
| Maximum board size | 420mm x 360mm (16.5 x 14 inch) |
| Minimum board size | 50mm x 25mm (2 x 1 inch) |
| Board thickness | 5.0mm (0.2 inch) including warp age |
| Maximum underside clearance | 8mm (0.31 inch) |
| Maximum board weight | 0.5kg (1 lb) |
| Registration repeatability | 25 microns at 6 Sigma at CpK '1.33 |
| Print area | 420mm x 350mm (16.5 x 14 inch) |
| Maximum print stroke | 360mm (14 inch) |
| Operation modes | Print/print, print/flood, flood/print, 1 or 2 deposits |
| Standard stencil frame size | 508mm x 508mm x 25mm (20 x 20 x1 inch) |
| X/Y stencil alignment range | +-10mm (+-0.393 inch) |
| Radial stencil alignment range | +-3 degrees |
| Squeegee pressure | 0 - 15.0 Kg (33 lbs) |
| Squeegees | Metal or Polyurethane |
| Print speed | 5 - 170mm sec (0.2 - 6.7 inch / sec) |
| Snap off speed | 1 - 20mm sec (0.04 - 0.748 inch / sec) |
| Transfer height | 915mm - 965mm (36 - 38 inch) |
| PCB Support | Magnetic pin + vacuum support |
| Throughput time | 20 seconds per cycle (20 sec per board) excluding print time |
| Conveyor | 3mm 'O' ring Front / rear dedicated Right / left feed |
| Min board edge clearance | 5 mm (0.19 inch) |
| Power supply | 110-240V, 60/50Hz +/-10% |
| Internal power supply | 24V |
| Power consumption | 400W |
| Air supply | 5 cfm at 5 Bar clean air supply |
| Weight | 250 kg |
| Height | 1118mm |
| Depth | 1070mm (42.13 inch) |
| Width | 797mm (31.4 Inch) |
| User interface | Microsoft Windows 95 with SigmaPro v6.3 machine control software |
| Interface control | Monitor with light pen |
| Product file storage | Disk-constrained |

## Vision Specification:

| | |
|---|---|
| Camera field of view | 10mm x 10mm (0.0393inch x 0.0393inch) |
| Teach window | Up to 10mm x 10mm |
| Viewing capability | 508mm x 584mm (20 x 23 inch) |
| Camera system | Roving camera module with dual beam optics |
| Fiducials | Standard shape fiducials. See SMEMA standards |
| Processing speed (typical) | Less than 500 milliseconds per fiducial (for a 1.0mm fiducial within +/- 2.5mm of trained location) |
| Vision processing methods | Normalized gray scale correlation and binary boundary tracking |
| Gray scale resolution | 256 shades of gray per pixel |
| Image storage capacity | 512 x 512 pixels |
| Frame store | Matrox |
| Pixel to mm ratio | ~ 0.019mm/pixel (Assumes 10mm horizontal field of view) |

Automation Technical Services is staffed with people that have been associated with the UP-400 from its inception. We service and support over twenty five reconditioned units throughout the US and Mexico.

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