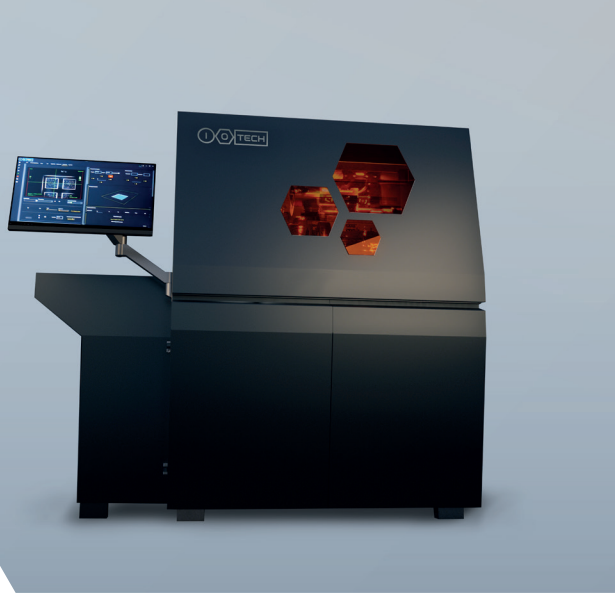
io300 data sheet



SHAPING THE FUTURE OF ELECTRONICS MANUFACTURING

io300 is an award-winning, cutting-edge deposition system designed for SEMI packaging, SMT & PCB manufacturing.

Built on ioTech's patented **Continuous Laser Assisted Deposition (CLAD)** technology, it delivers unprecedented precision, speed, and material versatility in industrial manufacturing.

Key Capabilities & Benefits

- **Multi-material deposition**
  enables integrated traces, dielectrics, and encapsulants in a one-step process
- **Nozzle-free, contact-less digital deposition**
  avoids nozzle clogging and increases reliability
- **Multi-layer** for higher aspect ratios
- **Material flexibility (material & substrate agnostic)**
  compatible with a wide range of industry-standard materials such as solder paste, adhesives, encapsulants, copper, ceramics or epoxy ... all without reformulation
- **High throughput & high resolution**
  unique combination of high productivity and fine features through laser assisted digital deposition
- **High temperature curing,** at up to 200°C
- **UV curing** within inert environment
- **High resolution inspection**
  reduces waste and post-processing requirements
- **Combo capabilities on most substrates**
  Combines in a single platform multi-layer and multi-material deposition, curing and inspection processes
- **Industrial micro-dispensing**
  with resolutions down to 40µm and dot placement accuracy reaching 10µm
- **Sustainable & re-shoring friendly**
  compatible with emerging bio-sourced materials

DEPOSITION BEYOND BOUNDARIES

Example applications

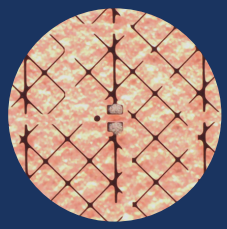
- LED encapsulation
- TIM
- Die interconnect
- Solder paste
- Solder mask
- Legend
- Conductive traces
- Dam
- Die Attach
- Underfill
- Flux
- RDL / Interconnect
- Encapsulant
- Micro coating
- Vertical interconnect
- Bumping
- Ceramic

Winner of prestigious awards

Winner of the **productronica** innovation award 2021

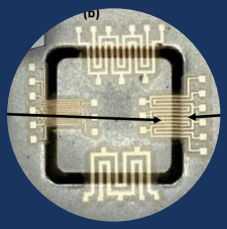
Winner of the LOPEC 2022
Start-up Forum Award
Most Impactful Technology

From dots and lines to complex structures, io300 provides a wide range of applications



High resolution solder paste

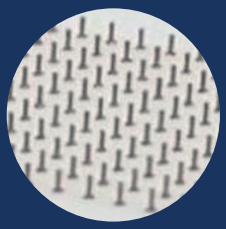
45 µm droplet



3D conductive line

Precision dam

Functional PCBs



Vertical interconnects

Technical Specifications

PRINT TECHNOLOGY	
Enable digital tunable and fast printing	
Technology	LIFT Laser Induced Forward Transfer
Spot size	Tunable 30um - ~300um
Laser power	Tunable 50mW-18W
Scanner print area	100X100 mm2
Scanner speed	>300mm/s

MATERIAL	
Handles wide range of print materials. Mask free, Nozzle free	
Tunable layer thickness	> 5 µm
Material dispenser	Up to 4 stations
Syringe types	Standard 5cc, 10cc, 30cc, 50cc
Cooling option	5°C min. for longer pot life

INSTALLATION	
Machine footprint	1685 mm x 1323 mm
Machine mean weight	1000 kg
Power	220 V/16A, 1 phase

CAMERA: Two devices with different light sources	
Two cameras with different light sources to control jetting, align substrate and control print quality	
CCD	2448 x 2048 pixels
Visualisation area	2.4 x 2mm
CCD	1920 X 1200
Visualisation area	19.2 x 12 mm
Alignment types	Marks, edge or specific if required
Image analysis	Fully automated

MOTION SYSTEM: High accuracy calibrated five axis device	
Three translation axis and two motorized rotations (printheads resolution calibration + substrate alignment)	
X and Y stage repeatability	< +/- 2 µm
Z repeatability	< +/- 2 µm
X and Y stage velocity	Up to 400 mm/s

SUBSTRATE HOLDER: Motorized Vacuum Chuck	
Designed to manage a wide range of substrates for many applications	
Size	300 mm x 300 mm
Clamping	Vacuum
Handling system	Compatible with fragile substrates such as ceramic, glass & wafer

POST-TREATMENT: Dry and UV cure printed layers	
Fully integrated and synchronized with the printing	
Post-process compatibility	Heat, UV, Laser micro-machining
Substrate management	
Solvent extraction	Exhaust connection

STANDARDS COMPLIANCE	
CE	SEMI S2
EN 6024-33	SEMI S8
IEC 60825-1	SEMI F47 UL & CSA on request

OPTIONS
Heat Drying
UV curing
Material cooling
Laser micro-machining