



iTWO™ series

Contact & Non-Contact Liquid Microdispensing Instrument

M2-Automation Dispensing Technology systems for protein and DNA microarray spotting, biosensor loading, Microfluidics chips reagent printing, all on coolable targets.

Climate Control System for controlling temperature, humidity and DEW point.

The iTWO systems allow 2D drop volume logging and JATS software control for variable individual sample parameter control. The combination of the head camera and inline QC software allow recovery runs for missing spots for producing perfect microarrays with the lowest scrap-rate.

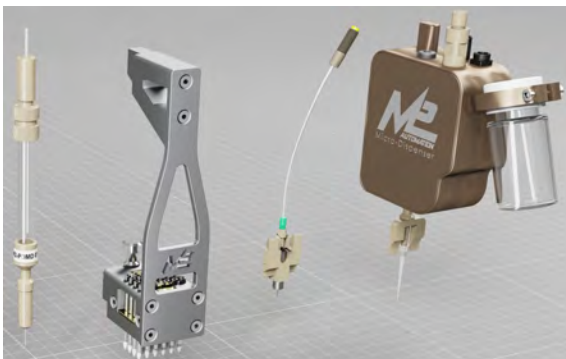
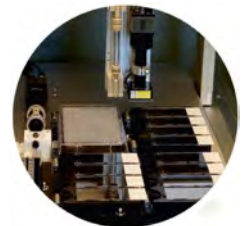
- Automated target and microarray imaging
- 2D- or 3D- imaging for droplet determination
- Volume range from 30 pL to mL
- User exchangeable dispense heads
- Inline QC for the highest microarray quality
- Flexible deck configuration
- Different instrument deck sizes



Instrument iTWO™ - equipped with a source MTP or vial holder, wash station, droplet volume detection system, head camera for QC, flexible deck configurations, where MTPs, glass-slides and vial can be placed next to each other.



In-line system liquid degassing and filtering for unparalleled operating robustness



Interchangeable dispensing nozzles:

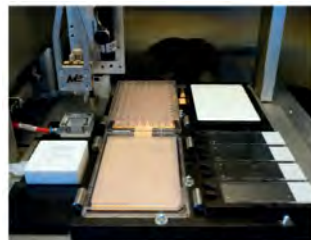
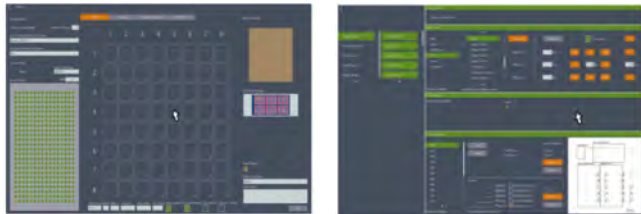
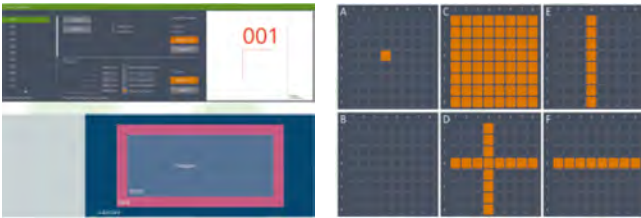
- **PDMD:** the most advanced piezo-dispensing nozzle on the market (30-200 pl per drop, 0.5-10 mPas, 2% cv)
- **PINDMD:** for highly viscous or otherwise difficult to dispense liquids, as well as for high-throughput spotting (blunt, split and capillary pins available)
- **SDMD:** a solenoid nozzle with aspirate/dispense or bulk dispense capabilities (10 nl and up, 0.5-10m pPas, 5% cv)
- **M2MD:** Proprietary cartridge offering both aspirate/dispense mode, and bulk dispensing options. Droplets (10-50, 50-250, or 100-500 nl, 20Hz) or jets for larger volumes. 5-20 mPas.



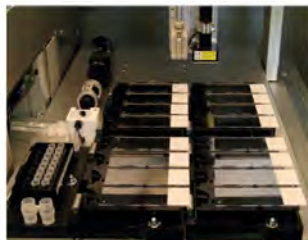
Intuitive User Interface

The In Dot software running under Windows 10 is the result of more than ten years experience in micro-dispensing and arraying; guiding the user easily through all features such as target layouts, array formatting, reagent and volume settings.

- Main screen reflects the current instrument status and run configuration
- Substrate designer assists with designing dispensing patterns via simple mouse click
- Target access provides single click access to all target positions for dispensing and imaging
- Wash designer offers effortless drag and drop programming of wash sequences
- Real time imaging and drop observation within run
- Individual dispense parameters for every sample in a run
- Full control of the environmental parameters: humidity, cooling temperature, dew point



iTWO 300P™ equipped with 2 wash stations for PDMD/SDMD (back) and PinDMD (front). PinDMD and a camera are mounted on the head. Deck can be chosen with different source and/or target adapter.



Deck shows a source vial adapter for 3x8 vials and 4 MTP sized positions for target holders. Here: 16 slides as targets; alternate a planar/vacuum table for up to 24 slides. PDMD is mounted on the head.

Technical Data

Capacity:

- iTWO™-300P 30 slides / 4 MTPs / 16 vials
1 planar holder for wafers, membranes
180 x 300 mm or 215 x 215 mm
- iTWO™-400 60 slides / 8 MTPs
- iTWO™-XL 100 slides / 20 MTPs

Source formats:

- 96-, 384-, 1536-MTPs or
- 16 plastic vials of 0.5-2 ml or
- 1 mini-MTP: 24 wells of 100 µl or 65 wells of 25 µl or
- cartridge dispensing from 2-20 ml vial

Microdispensers:

- Piezo Driven Micro-Dispenser: 30 pl to 300 pl per droplet; c.v. < 2 %; max. frequency 1000 Hz
- Solenoid Driven Micro-Dispenser: 30 nl to ml per ejection; c. v. < 10 %; max. frequency 250 Hz
- M2-Micro-Dispenser: 10 nl to ml; c. v. < 2 %; max. frequency 10-250 Hz, depending on version.
- Pin Driven Micro-Dispenser: 75 pl+; cv < 5%

Dispense modes:

- aspirate (air-gap possible)
- dispense out of large volume source vials
- re-suspend samples

Resolution: 1.0 µm

Positioning accuracy in XY directions: <= 5 µm (XL: 10 µm)

Maximum positioning velocity:

up to 20 sample depositions per second

Maximum drive range:

iTWO-300P: X = 250mm, Y = 300mm, Z = 100mm

iTWO-400: X = 400mm, Y = 400 mm, Z = 25mm

iTWO-XL: X >= 600mm, Y >= 300mm, Z = 25mm

Dimensions: (W x D x H)

iTWO-300P (benchtop): 110 x 70 x 110 cm (43 x 28 x 43 in)

iTWO-400: 65 x 65 x 45 cm (26 x

iTWO-XL: from 60 x 60 x 160 cm

weight from 125 kg (275 lbs)

HEPA filter system:

W 38 cm (15 in), D 41 cm (16 in), H 61 cm (24 in), weight 12 kg (26 lbs)

Ergonomic user stand USTA for keyboard, mouse and monitor: W 44 cm

(17 in), D 58 cm, (23 in) H 175 cm (69 in), weight 36 kg (80 lbs)

Power:

iTWO-300P 100-230 V, 780 W

Safety housing 75 W

HEPA filter 20-160 W

