

instrumentONE series

High performance microarray-dispensing



High accuracy & the best resolution

- High throughput applications
- High production capacity
- Automated target and microarray imaging
- 2D- or 3D-imaging system for droplet determination
- Spot-on-the-fly for quick microarray spotting
- Inline QC for the highest quality
- Flexible deck configuration
- Different instrument sizes

instrumentONE - an ultrafast, high-precision, non-contact liquid handling system

Novel Quattro-Jet Technology

This technology combines four different micro-dispensers in one single instrument:

- 1) Piezo Driven Micro-Dispenser (PDMD) for pico- to low nanolitre applications
- 2) Solenoid Driven Micro-Dispenser (SDMD) for nano- to low millilitre applications
- 3) M2-Micro-Dispenser (M2MD) for low nano- to low millilitre applications
- 4) Pin Driven Micro-Dispenser (PinDMD) for pico- to low nanolitre applications with dual head and inline QC for an optimal microarray result

M2-micro-dispensers present a new highly flexible technology in micro-dispensing which supports even dispensing out of low-cost, disposable pipette tips. All dispensers can be equipped with temperature control for maximum reproducibility and high volume accuracy. M2-micro-dispensers can be used for bulk dispensing, include online degassing and are also available as cartridges, with dispensing liquid stored in their vessels.



instrumentONE equipped with PDMD, piercer for sealed plates (left) and head camera (right)

Solenoid Micro-Dispenser

Piezo Driven Micro-Dispenser in operation on glass slides

M2-Micro-Dispenser with a disposable tip

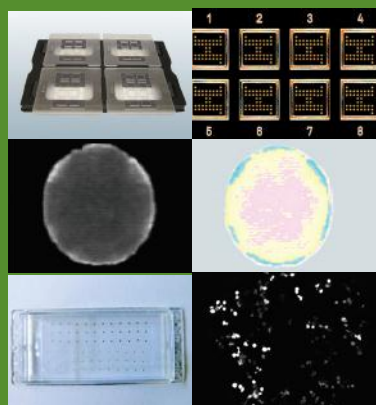
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Intuitive User Interface

Instrument software 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



Key features

- Integration of custom-specific components
- Temperature controlled unit (cooling and heating units)
- Humidity control
- Clean room conditions, HEPA filter
- Environmental enclosure
- Mobile instrument set-up
- Piercer for sealed MTPs

Instrument Applications

Our instruments are designed for a broad spectrum of applications

- DNA / protein / cell microarrays
- Multiplex ELISAs
- Lateral Flow applications
- Cell transfection arrays
- MALDI-MS sample preparation
- HPLC fraction collection
- Diagnostic biochips, Lab-on-a-Chip
- Diagnostic biomarker and microbiology assays on multiple substrate (slide, MTP, NC membrane)
- Drug discovery: small volume GPCR assays, immunoassays
- Compound library screening
- Dose-response curves for compound library
- Spotting to custom-specific substrates and formats
- Semiconductors
- Preparation of thin films, TXRF

Technical Data:

Capacity:

iONE-400 - 60 slides / 8 MTPs
iONE-600 - 92 slides / 12 MTPs
iONE-1000 - 156 slides / 22 MTPs

Source formats:

96-, 384-, 1536-MTPs or 16 plastic vials of 0.5-2 mL or 1 mini-MTP: 24 wells of 100 μ L or 65 wells of 25 μ L 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; dispense out of large volume source vials; re-suspend samples

Resolution \leq 1.0 μ m

Positioning accuracy in XY directions \leq 5 μ m

Maximum positioning velocity: up to 20 sample depositions per second

Maximum drive range:

X=400/600/1000 mm, Y=300mm, Z=25mm

Dimensions:

W from 60 cm, D 60 cm, H 160 cm, weight from 95 kg

HEPA filter system: W 38 cm, D 41 cm, H 61 cm, weight 12 kg

Ergonomic user stand USTA for keyboard, mouse and monitor: W 44 cm, D 58 cm, H 175 cm, weight 36 kg

Power:

iONE 590 W, 100-230 V;
Safety housing 75 W
HEPA filter 20-160 W