

instrumentTWO series

Micro-dispensing instrument



instrumentTWO basic

High accuracy & great flexibility

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



instrumentTWO high end or XL

instrumentTWO - a high precision, highly flexible non-contact liquid handling system

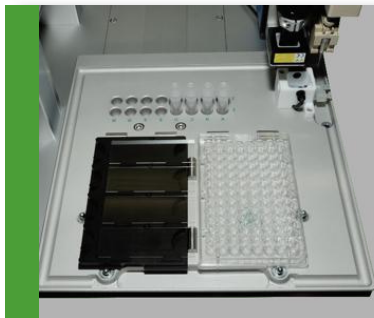
Novel Triple-Jet Technology

This technology combines three 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

M2-Automation spotting technology system for protein and DNA microarray spotting in 20+ μ L, 10+nL to mL. volume ranges for printing on different coolable targets under controlled conditions (Climate Control system for controlling temperature, humidity and DEW point).

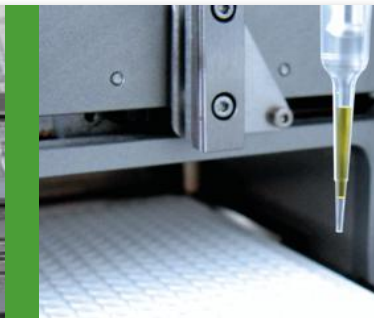
The instrumentTWO allows 2D drop volume control and JATS for variable individual sample parameter control. Together, the head camera and the inline QC software allows re-spotting of missing spots onto the produced microarrays.



instrumentTWO equipped with wash station, droplet and head camera



iTWO-400 for flexible deck configuration with MTPs and targets next to each other



M2-Micro-Dispenser with a disposable tip



instrumentTWO equipped with 100 μ L source vials and 8 Lab-on-a-Chips microfluidics

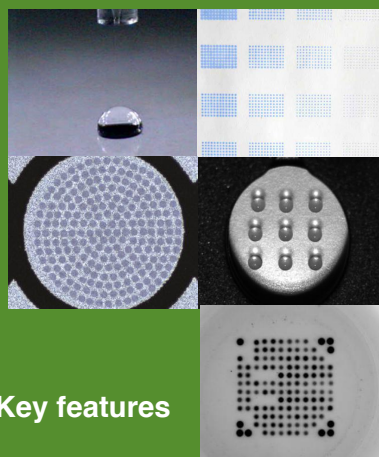
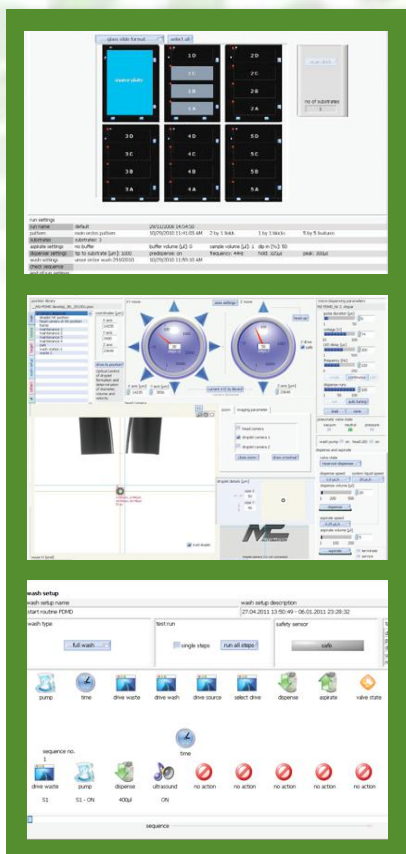
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Intuitive User Interface

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 assay development
- Spotting to custom-specific substrates and formats
- Semiconductors
- Preparation of thin films, TXRF

Technical Data:

Capacity:

iTWO-200 - 16 slides / 2 MTPs / 16 vials
iTWO-400 - 60 slides / 8 MTPs / 16 vials
iTWO-XL \geq 100 slides / \geq 20 MTPs / 16 vials

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.

Dispense modes:

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

Resolution \leq 10 μ m

Positioning accuracy in XY directions 10-20 μ m, XL \leq 10 μ m

Maximum positioning velocity: up to 20 sample depositions per second

Maximum drive range:

iTWO-200: X = 200mm, Y = 200mm, Z = 25mm
iTWO-400: X = 400mm, Y=400 mm, Z = 25mm
iTWO-XL: X \geq 600mm, Y \geq 300mm, Z = 25mm

Dimensions:

iTWO-200 W 34 cm, D 37 cm, H 40 cm,
iTWO-400 W 65 cm, D 65 cm, H 45 cm
iTWO-XL W from 60cm D 60cm 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:

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