

Array Dispensing Application Overview

Innovadyne liquid handlers address your requirements for low-density array creation, performing precise deposition of multiple reagents in complex dispense patterns into microplates or onto substrates. Our instruments also perform PCR sample preparation and flexibly perform a wide range of other sample preparation steps prior to creation of microarrays by another instrument.

Innovadyne's non-contact dispensing capability coupled with its valve-free fluid path design guarantee precision and reproducibility of results, and excellent long-term reliability. Difficult-to-dispense reagents (such as particulates or beads) and/or costly genetic samples and proteins are readily handled, with very low dead volume and no system degradation. The aspirate/dispense capabilities of the platform also enable rigorous washing to be performed between samples, minimizing cross-contamination.

Classical liquid handlers using contact methods are prone to variable results due to plate and tip irregularities and poor positional accuracy (typically > 100 µm/axis). Innovadyne's platforms reliably fulfill critical

spotting requirements with precisely manufactured motion control (<20 µm return to spot accuracy) and high-precision non-contact solenoid dispensing.

Flexible aspirate and dispense programmability, such as single-tip, random access pipetting, augments Innovadyne's broadcast reagent capabilities. In addition to simple reagent additions, complex reagent and template map assemblies are also possible and easily programmed. Innovadyne instruments aspirate from and dispense to a wide variety of plates, reservoirs, reagent trays and Eppendorf style tube holders.

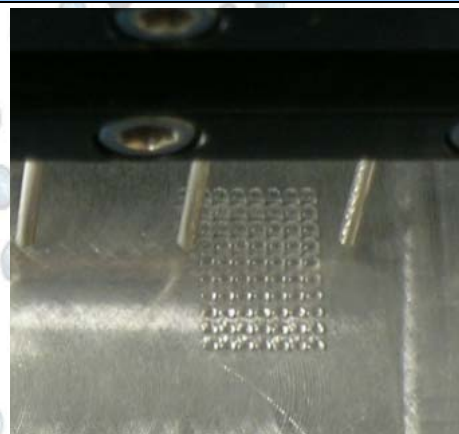
Application Notes

- **Solving the Challenges of Automated SPA YOx Bead Dispensing (M063)**
- **Miniaturizing PCR with the Nanodrop (M001)**

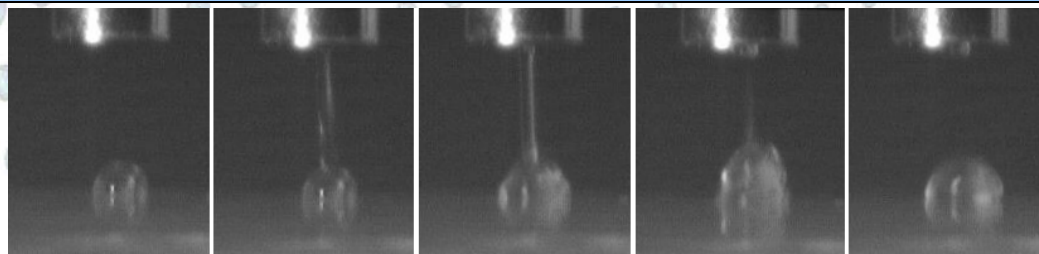
Technology Briefings

- **High Precision, Non-Contact Dispensing (M002)**
- **Low-Volume Dispensing with the Nanodrop (M021)**

Nanodrop Dispensing a Grid of 50 nL Drops 1mm Apart on a Slide



Nanodrop Depositing a 50 nL Drop on an Existing 50 nL Drop



Features

- Precise deposition of reagents over a dynamic range of five orders of magnitude, with volumes of 50 nL to 500 μ L.
- Multiple reagents dispensed sequentially with cross-contamination inherently minimized
- Software-configured spot patterns and placement
- Accurate spot-on-spot dispensing
- Dispense protocols are scalable, from pilot to large-scale manufacturing
- Independent channel spotting enables spotting of unique dispense maps
- Easy to maintain and clean
- Flexible aspirate and dispense settings
- User defined syringe speeds and pressure set points
- Ability to clean nozzles between runs
- Low-dead volumes
- 96, 384, 1536, 3456 plates (including low-profile and deep well)
- User-friendly software
- Simple to integrate with drivers available from most integrators

Platforms

Item	Description	Plate Positions	8-Tip Head	16-Tip Head	96-Tip Head	Syringe Channels	1,4, or 8-Tip Additions to all Wells
	Nanodrop 8-channel fluidics only	-	-	-	-	8	-
10591	Nanodrop ExtY stage and fluidics	1	Yes	-	-	8	Yes
11638	Nanodrop II stage and fluidics	2	Yes	-	-	8	Yes
12056	Nanodrop Express stage/fluidics	1 or 2	-	Yes	-	16	Yes
11164	Screenmaker 96+8	5	Yes	-	Yes	16	Yes
12027	Platemaker HTS	5	Yes	-	Yes	104	Yes

Software

Item	Description
11727	Nanobuilder

Accessories

Item	Description
11193	Reagent refill system (Nanodrop)
	Wide-bore tip set (200 μ m)

Specifications (all platforms)

Return-To-Spot Accuracy	0.1 mm
Aspiration Range, 8-Tip Head	0.1-500 μ L
Dispensing Range (8-Tip Non-Contact)	0.1-40 μ L
Dispensing Precision, 8-Tip Head	CV<10% at 100nL, CV<7% at 200nL, CV<5% at 1 μ L
Dispensing Accuracy, 8-Tip Head	\pm 10% at 100nL, \pm 7% at 200nL, \pm 5% at >1 μ L
Dead Volume, 8-Tip head	1.5 μ L/channel at 1 μ L across 384-well plate
Syringe Capacity	500, 1000 μ L