

MANTIS®

conserve your reagents and your budget

The MANTIS® is a programmable, low volume, low dead volume, non-contact liquid dispenser that can reliably dispense a variety of solutions including those containing beads, cells, proteins, enzymes, probes and master mixes.

Broad Range of Applications



NGS Sample Preparation



Cell-based Assays



Real-time and Digital PCR Workflows



Assay Development and Optimization

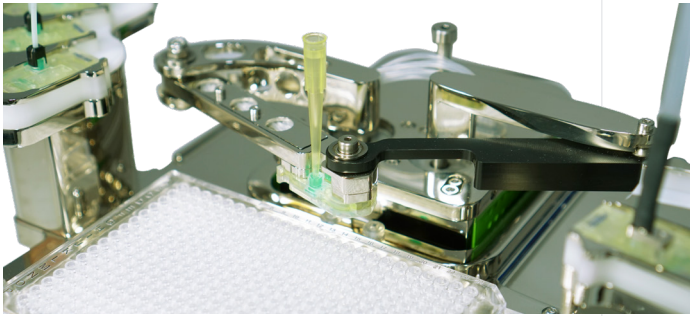


Enzyme-Linked Immunosorbent Assays (ELISA)



Key Features

- **Low Dead Volume** - dead volumes can be reduced to just 6 μ L by using pipette tips as reagent reservoirs
- **Clean** - the fluid path is both disposable and washable
- **Reliable** - non-contact micro-diaphragm technology dispenses using positive displacement with minimal risk of clogging
- **Flexible** - the MANTIS can dispense into 24-, 96-, 384-, and 1536-well formats with the ability to create custom, non-standard plate templates quickly and easily
- **Chemical Compatibility** - the MANTIS can dispense DMSO and other harsh solvents using optional perfluoroelastomer chips



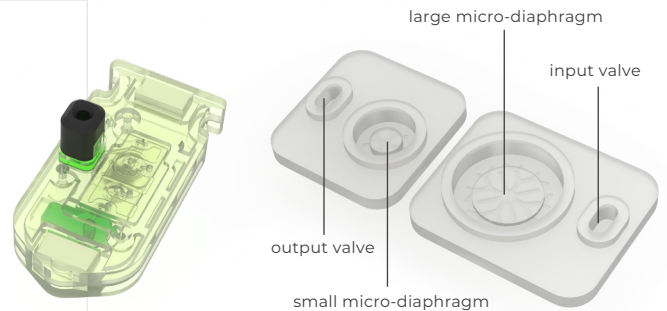
direct pipette tip dispenses reduce dead volumes to just 6 μ L

Conserve Reagents

To minimize dead volume, reagents plug directly into the microfluidic chip. Dead volumes are further reduced to just 6 μ L by using pipette tips as reagent reservoirs, making the Mantis ideal for dispensing even the most precious reagents. Unused reagent can be recovered to source reservoirs upon completion of a dispense run.

State-of-the-art Dispensing Technology

At the core of the MANTIS® is a microfluidic chip with a valve cluster that measures and dispenses discrete volumes of liquid. This valve cluster has two micro-diaphragms (select either 100 nL and 500 nL or 1 μ L and 5 μ L) that can fill and dispense as rapidly as 10 times per second.



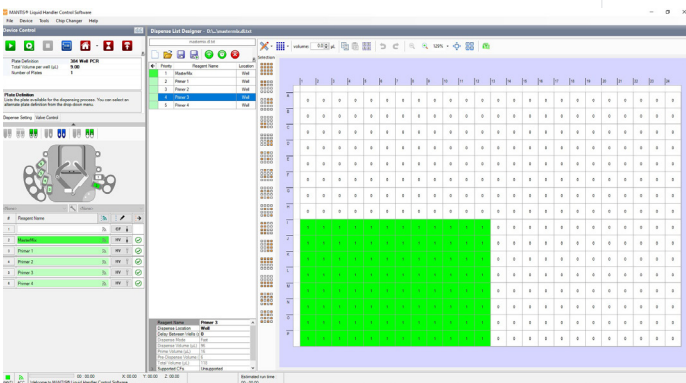
MANTIS chip and micro-diaphragm technology

User-friendly Software

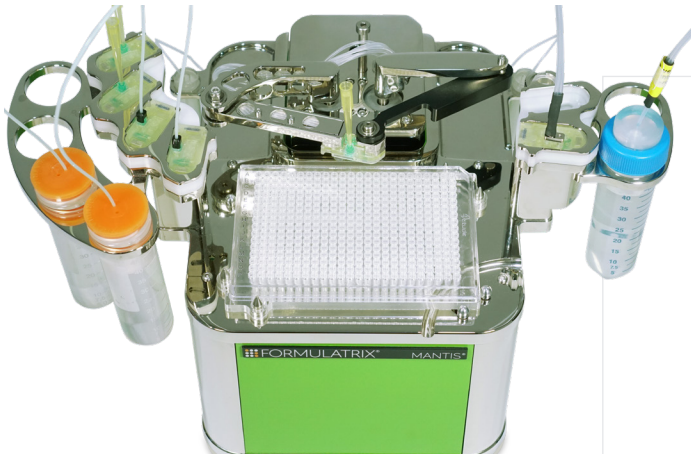
The MANTIS software provides a straightforward, user-friendly way to design even the most complicated dispense protocols in a matter of minutes. The software integrates with Microsoft Excel and allows easy importing of dispense lists from CSV files.

Integration Friendly

The MANTIS can easily be integrated with robotic plate handling solutions with an automation API designed for fully automated control of the dispensing process.



MANTIS software with 6 reagents set up for dispense



up to 6 reagents can automatically be dispensed with the MCC option

Customizable to Meet Your Needs

Multiple Chip Changer (MCC)

MANTIS[®] can automatically dispense up to 6 reagents to create complex plates and assay development protocols.

Continuous Flow Dispensing

Using the continuous flow option, the MANTIS can dispense volumes from 5 μ L -> 1000's of μ L in a continuous stream, perfect for deep well blocks. Continuous flow options are available to fit standard 50 mL Falcon tubes, 250 mL Nalgene bottles and Schott Duran GL45 Bottles.

Radio-Frequency Identification (RFID)

Chips Automatically track all your chip usage data including micro-diaphragm cycles and dispense history. That RFID tracking warns users when chips are due to be replaced, ensuring optimal performance across chip lifetime.

Automated Washing

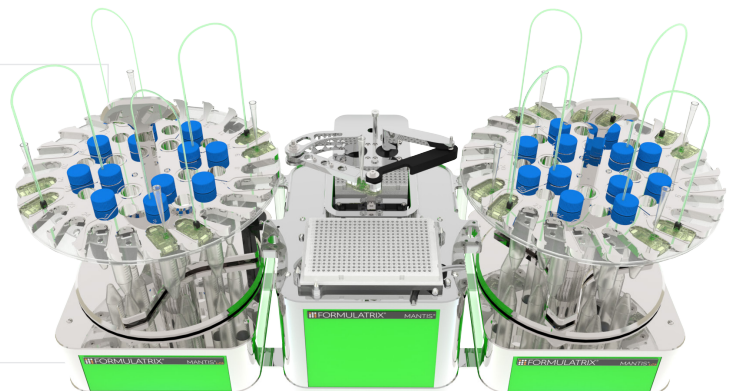
MANTIS has built-in dual wash stations for easy fluid pathway cleaning following dispenses.



built-in dual wash stations for easy cleaning

Large Capacity Chip Changer (LC³)

The LC³ upgrade vastly expands the number of reagents that can be automatically dispensed by adding a modular carousel for up to 24 chips. The addition of a second LC³ unit expands the capacity to up to 48 different reagents.

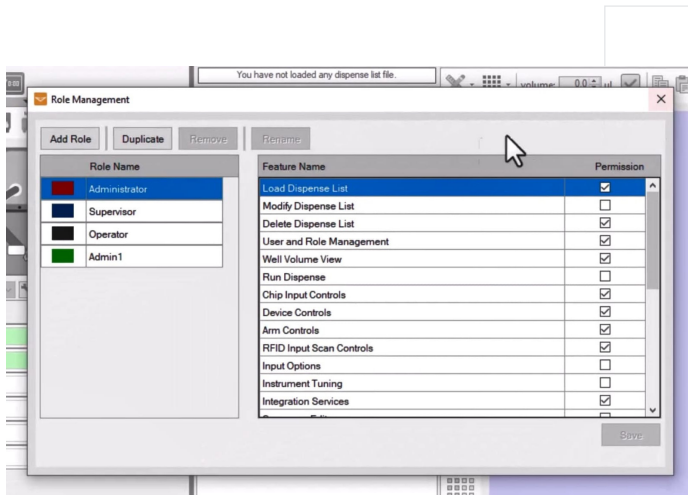


up to 48 reagents can automatically be dispensed with the LC³ option

User Account Management System

The MANTIS software allows seamless operation in regulatory environments including controlling user access and tracking user history. Our user management system will help you run your MANTIS dispenser in GLP, 21 CFR Part 11, or other regulatory environments by controlling user permissions and storing an official audit trail for your records.

Here are some key benefits of the MANTIS 21 CFR Part 11 “capable” software:



User account management system

User Account Management

- Restrict user access and instrument control by locally defined permission levels
- Lock users after failed login attempts
- Set and manage password requirements
- Archive old users, keep all user records

Secure Audit Trail Logging

- Date and time stamped user-action and instrument action records
- Full instrument and user-action electronic records are stored in a secure database
- Export log files to password protected PDFs
- Selectively manage log elements included in your audit trails
- Audit trails maintained for the lifetime of the instrument

Specifications and Requirements

Computer Specifications

- Windows Vista 32-bit, Windows 7/8/10 32-bit or 64-bit, or Windows 11
- Dual Core x86 or x64 1.5 GHz processor
- 1 built-in USB port (USB 2.0 recommended, USB 3.0 supported)
- 4 GB RAM
- 1 GB Hard Drive space
- 768 pixels vertical minimum screen resolution (900+ pixels recommended)

Electrical Specifications

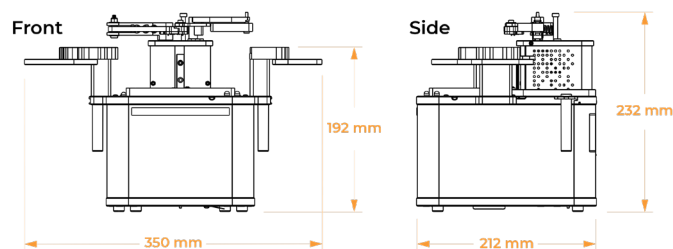
- 110 V - 240 V, 50 Hz - 60 Hz, 50 W typical, 150 W max. Standard or European outlet

Environmental Requirements

- 4-40 °C ambient temperature
- 85% or less relative humidity
- 4,000 m maximum altitude

MANTIS Physical Dimensions

- Width: 350 mm or 13 25/32" (smaller without ACC or reagent holders)
- Height: Full Extension: 232 mm or 9 9/64" (not including pipette tip input)
- Height: No Extension: 192 mm or 7 9/16" (not including pipette tip input)
- Depth: 212 mm or 8 11/32"
- Weight: Approx. 5.2 kg (11.5 lbs)



Microfluidic Chip Options

A variety of dispensing chips are available including certified molecular biology grade chips and chips that are compatible with harsh solvents.

| Chip Type | Diaphragm Vol. | Min Vol. | Max Vol. | Pulses per Second | Dead Vol. | CV's |
|-----------------|----------------|----------|----------|------------------------------|-----------|--------------|
| Low Volume | 0.1µL + 0.5µL | 0.1 µL | ∞ | @ 0.1 µL: 10, @ 0.5 µL: 7 | 6 µL | <3% at 0.1µL |
| High Volume | 1 µL + 5 µL | 1 µL | ∞ | @ 1 µL: 10, @ 5 µL: 4 | 15 µL | <3% at 1µL |
| Continuous Flow | N/A | 5 µL | ∞ | dispenses up to 600 µL / sec | 150 µL | <3% at 5 µL |

For more information about the MANTIS, visit us at www.formulatrix.com or email info@formulatrix.com