

**HAMILTON**

# Microlab<sup>®</sup> NIMBUS<sup>®</sup>

## Personal Pipetting Workstation

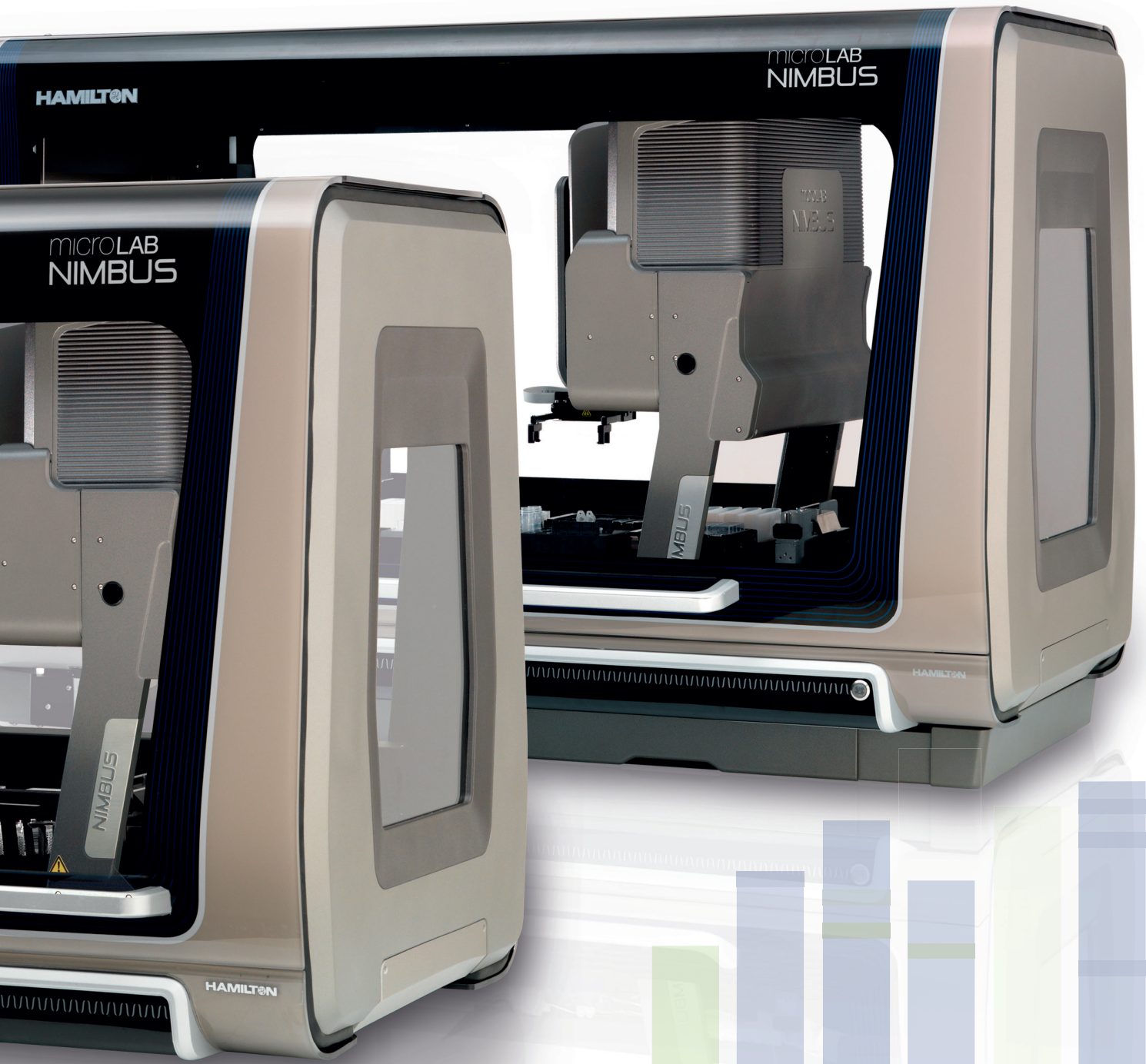


microlab  
NIMBUS

# Meet NIMBUS

- ◀ 4 OVERVIEW
- ◀ 5 CHOOSE NIMBUS
- ◀ 6 A LOOK INSIDE
- ◀ 7 DECK OPTIONS
- ◀ 8 NIMBUS4
- ◀ 9 NIMBUS96
- ◀ 10 TECHNOLOGY
- ◀ 12 INSTINCT SOFTWARE
- ◀ 14 OPTIONS AND ACCESSORIES
- ◀ 18 CONSUMABLES
- ◀ 20 SPECIFICATIONS
- ◀ 22 SERVICE
- ◀ 23 ABOUT HAMILTON





# Microlab NIMBUS

The Microlab NIMBUS is a compact, multi-channel automated liquid handling system, offering speed, flexibility, ease-of-use, and superior pipetting performance all for a surprisingly affordable price.

In contrast to large, multi-integrated, high-end systems designed for automating complex workflows, the NIMBUS is a small-footprint, lean-integrated, entry-level pipettor ideally suited for automating a single or select set of liquid handling routines. A flexible deck layout and a broad range of modular accessories and options makes reconfiguration for new applications quick and easy.

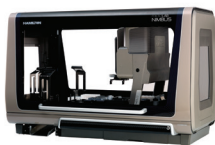
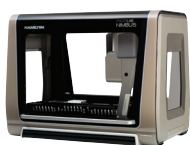
The NIMBUS is available in two pipetting options, each with a variety of highly configurable base platforms such as Enclosed and Extended Enclosed.

## ◀ NIMBUS4/8

4 or 8 Independent 1000  $\mu$ L Liquid Channels

## ◀ NIMBUS96

96-Channel Multi-Pipetting Head (MPH)



NIMBUS4

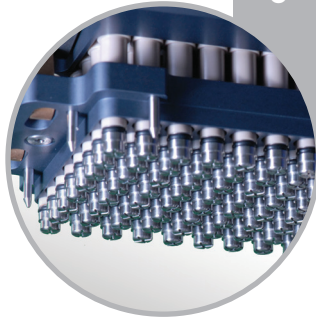
NIMBUS96



INDEPENDENT CHANNELS



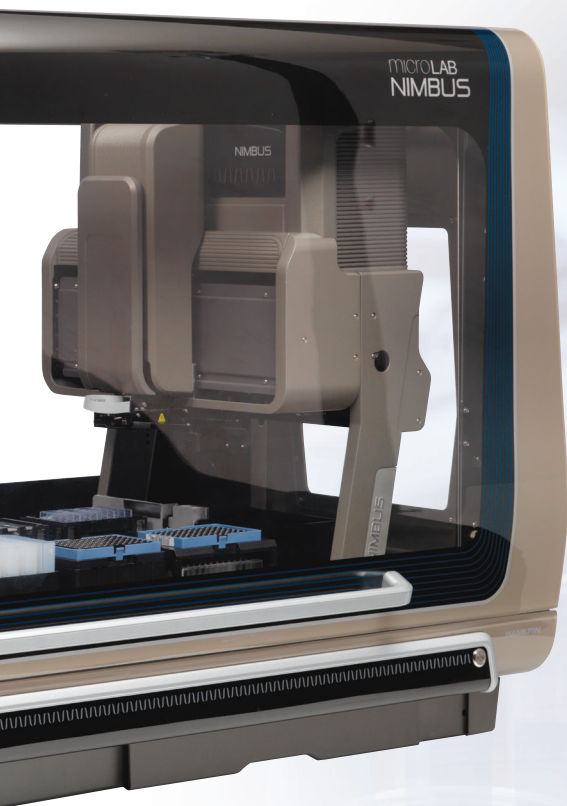
CO-RE 96 MPH



# Choose NIMBUS

Integrated options, intuitive software, and the backing of Hamilton's renowned service and applications support team makes the NIMBUS an indispensable tool for many labs.

Using Hamilton's proprietary air displacement pipetting technology, the NIMBUS offers the same liquid handling performance as higher-end systems.



- ◀ HIGH PIPETTING ACCURACY AND PRECISION
- ◀ LOW/MEDIUM THROUGHPUT
- ◀ SMALL FOOTPRINT
- ◀ AFFORDABILITY

# A Look Inside NIMBUS

NIMBUS is a small footprint, high-speed liquid handling platform, featuring fast plate-based pipetting using the CO-RE 96 MPH or flexible pipetting to and from

tubes and plates using 4 independent liquid channels. For enhanced process security, NIMBUS Enclosed features a locking cover set that minimizes environmental contamination.

## 1 LABWARE GRIPPER ARM

An optional labware gripper arm makes for easy handling of single or stacked microplates, deep-well plates, lids and Hamilton's Nested Tip Racks (NTR). Extended reach and 270° of rotation allows for seamless handoffs to integrated devices located both on and off the NIMBUS deck.

## 2 EXTENSION PLATE

Four additional non-pipettable locations for Hamilton stackers, pedestals, Hamilton Heater Shaker, and additional small third-party devices.

## 3 DOOR LOCKS

Doors automatically lock (not shown) when the system is running.

## 4 MOVEMENT INDICATOR

Provides visual, at-a-glance, cues to the operational status of the NIMBUS.

## 5 CO-RE PADDLES

Using two pipetting channels in parallel, the NIMBUS can transport plates or tips across the deck without the need for a dedicated labware gripper. CO-RE grippers are available for 1000 µL channels.

## 6 SMALL FOOTPRINT

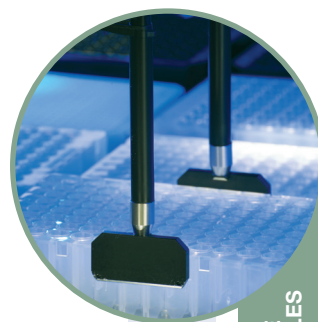
The compact size provides for positioning on virtually any benchtop as well as in select commercial hoods and bio-safety cabinets.

## 7 WASTE STATION

An attachable waste receptacle (not shown) accommodates used tips and empty NTRs.

## 8 COMMUNICATIONS AND CONTROL PANEL

Simply connect the Ethernet cable from your PC to the communications port, plug in the power cable and push the power button to bring the NIMBUS to life. An Auxiliary Communications Panel is also featured to support integrated peripheral devices.



CO-RE  
PADDLES

# Versatile Deck Options

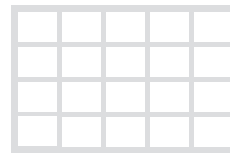
Understanding that different assays have different requirements, NIMBUS offers two deck options to meet your needs. NIMBUS offers flexibility to easily automate your assays and the ability to integrate small devices and read barcodes.

## ◀ NIMBUS DECK (SHIFT-N-SCAN)



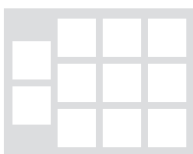
- ▶ 8 SBS plate & trough positions
- ▶ 3 barcoded tube locations
  - ▶ Up to 96 tubes
- ▶ Plate barcode reading

## ◀ NIMBUS DECK (4 X 5)

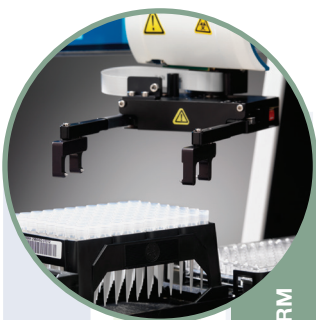


- ▶ High-density deck up to 20 SLAS ANSI positions
- ▶ Allows for tip and plate stacking
- ▶ Tube and Plate barcode reading
- ▶ Integrates with:
  - ▶ Heaters
  - ▶ Shakers
  - ▶ Chillers

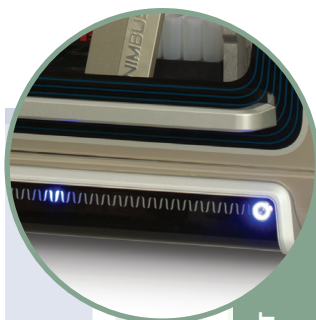
## ◀ NIMBUS DECK (9 + 2)



- ▶ 11 SBS positions
- ▶ 9 positions for standard SBS labware
- ▶ Plate barcode reading
- ▶ 2 positions used for:
  - ▶ Tip stacking, plate stacking
  - ▶ Small third-party integrations
  - ▶ Labware taller than 118 mm and smaller than 166mm



LABWARE GRIPPER ARM



MOVEMENT INDICATOR

# NIMBUS4/8

The NIMBUS4 and NIMBUS8 offer superior performance and feature 4 or 8 independent pipetting channels for flexible pipetting to and from tubes and plates.

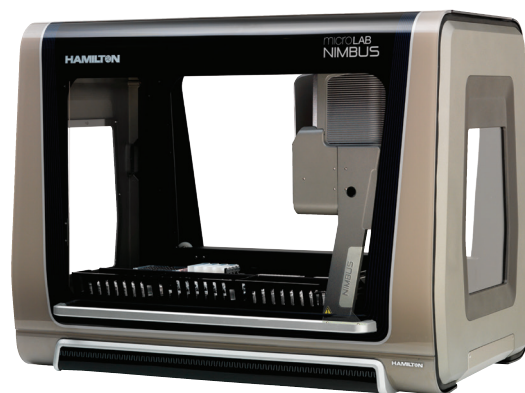
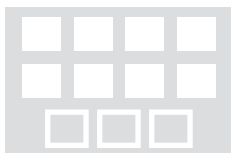
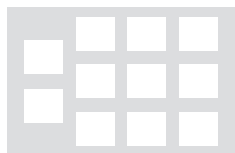
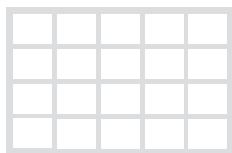
## ◀ INDEPENDENT CO-RE PIPETTING CHANNELS

- ▶ Independent movement in both Y and Z axis
- ▶ Available in 1000  $\mu$ L (4 or 8 channels)
- ▶ Dynamic pipetting range of 0.5  $\mu$ L to 1000  $\mu$ L
- ▶ Features cLLD and pLLD for polar and non-polar (organic) liquids
- ▶ Full range of CO-RE tips are available
  - ▶ 10, 50, 300 and 1000  $\mu$ L
  - ▶ Black or clear (conductive and non-conductive)
  - ▶ Slim, wide bore tips, etc.

## ◀ MAIN DECK

An open platform allows for easy loading of carrier pedestals, adapters, plates, tubes, and tip racks onto the high-density main deck. Up to 8 standard microplates can be stacked onto a single position. Choose from 3 different deck configurations:

- ▶ 4 x 5: High-density (HD) deck up to 20 SLAS ANSI positions
- ▶ 9 + 2: 9 main deck positions and 2 sub-deck positions
- ▶ Shift-n-Scan: 8 main deck positions and the integrated tube barcode scanner (only NIMBUS 4)

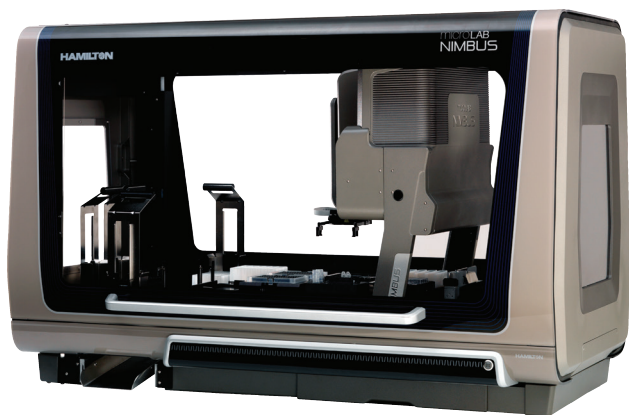


4 X INDEPENDENT CHANNELS



# NIMBUS96

The NIMBUS96 features a high-speed CO-RE 96 MPH which ensures fast and accurate pipetting to 96- or 384-well plates across a wide range of volume, in individual, column, row, and whole plate formats.



## CO-RE 96 MPH ▶

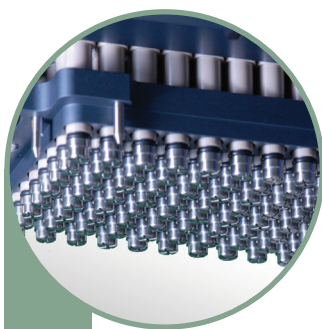
- ▶ Fast and accurate pipetting to 96- or 384-well plates
  - ▶ Dynamic pipetting range of 1  $\mu$ L to 1000  $\mu$ L
- ▶ Features Capacitive Liquid Level Detection (cLLD)
  - ▶ Full range of CO-RE tips are available
    - ▶ 10, 50, 300 and 1000  $\mu$ L
  - ▶ Black or clear (conductive and non-conductive)
    - ▶ Slim, wide bore tips, etc.

## MAIN DECK ▶

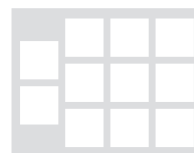
An open platform allows for easy loading of carrier pedestals, adapters, plates, tubes, and tip racks onto the main deck. Up to 5 standard microplates can be stacked onto a single SBS position.

Deck configurations:

- ▶ 9 + 2: 9 main deck positions and 2 sub-deck positions



CO-RE 96 MPH

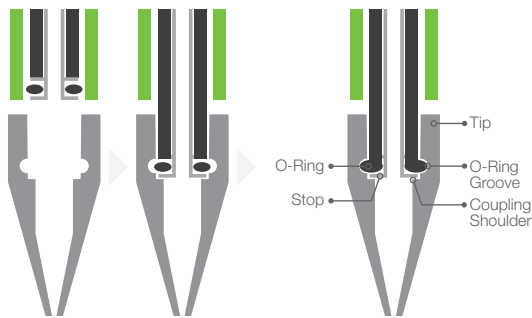


# NIMBUS Technology

Incorporating our proprietary technology, the NIMBUS offers the same consistent, quality pipetting you expect from Hamilton in a compact personal pipetting workstation. Our patented technology, the foundation of precision and reliability, includes individual positioning of pipetting channels, precise tip attachment, unrivaled Liquid Level Detection, and a comprehensive volume range.

## COMPRESSED O-RING EXPANSION (CO-RE®)

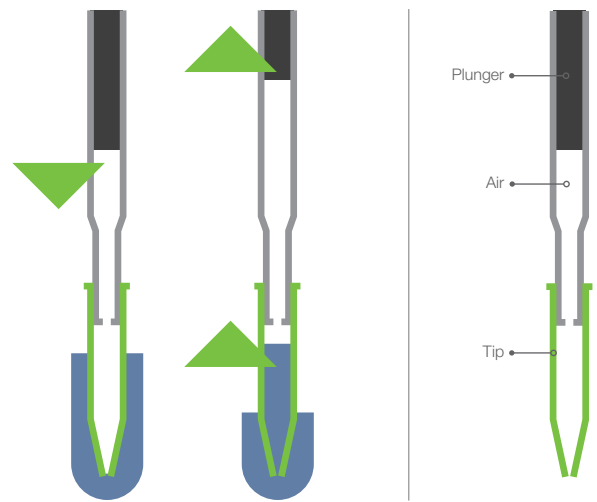
Automated liquid handling applications require precision in tip attachment and positioning. To ensure such precision, Hamilton liquid handling workstations offer proprietary CO-RE technology. CO-RE technology attaches disposable tips, steel needles, or transportation tools to the pipetting channels with a highly robust lock-and-key mechanism. The system requires no vertical force for tip attachment or tip ejection, thus eliminating mechanical stress and improving the overall system reliability, pipetting speed, positional accuracy, and dexterity.



## AIR DISPLACEMENT PIPETTING

NIMBUS utilizes proven air displacement technology, which is analogous to using a hand pipette, and offers all the benefits that come with system liquid-free pipetting.

- ▶ High pipetting accuracy and precision from sub-microliter to large volumes
- ▶ Dynamic pipetting range of 0.5  $\mu\text{L}$  to 1000  $\mu\text{L}$  using the 1000  $\mu\text{L}$  pipetting channel
- ▶ Reduced risk of contamination or sample dilution because there isn't system fluid
- ▶ Increased robustness and less maintenance due to lack of system liquid, diluters, valves, or complicated tubing

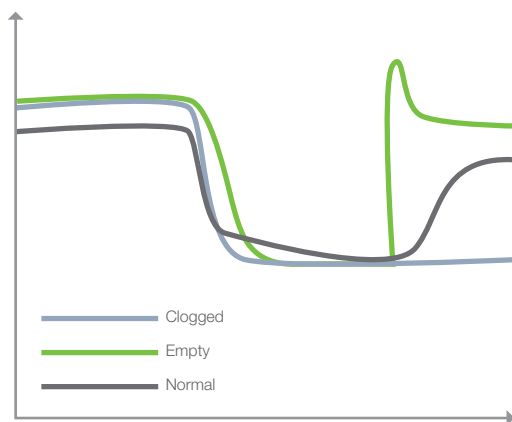


## LIQUID LEVEL DETECTION (LLD)

NIMBUS uses LLD technology to determine liquid levels in tubes and plates located on the pipetting deck. There are two modes of LLD: capacitive LLD (cLLD), used to detect conductive liquids; and pressure-based LLD (pLLD), which can detect virtually all liquid types, including foaming liquids and non-conductive organic solvents. cLLD is available on all NIMBUS4 workstations, and NIMBUS96 (MPH channels A1 and H12). pLLD is available on NIMBUS4 only. For even greater confidence in LLD, a dual mode LLD approach may be used (NIMBUS4 only).

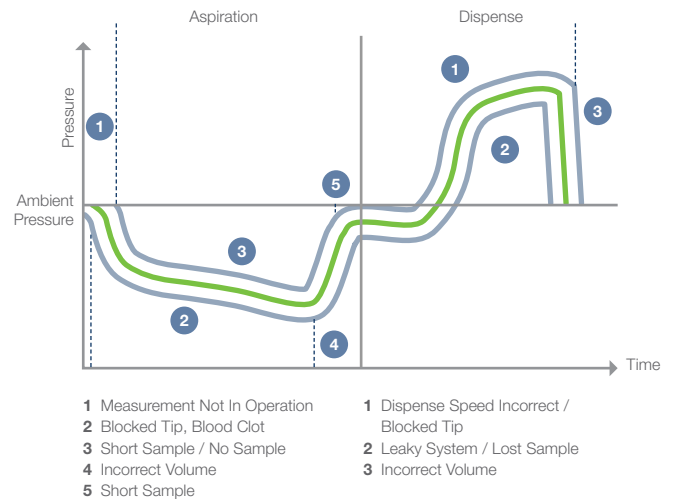
## MONITORED AIR REPLACEMENT (MAD)

Monitoring the air-based pipetting action, each individual pipetting channel on the NIMBUS4 can detect clots or empty wells in real time during the aspiration step. It can also be used to pipette highly volatile solvents. Delivering a confirmation of the successful aspiration, real-time tracking of the aspiration performance with MAD offers certainty for your automated assays by providing reliable, consistent walk-away automation. (NIMBUS4 only)



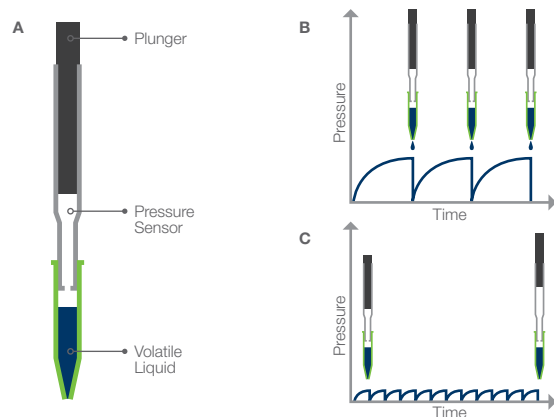
## TOTAL ASPIRATION AND DISPENSE MONITORING (TADM™)

During crucial sample transfers, parameters may be set up for real-time monitoring of each independent pipetting channel during the aspiration and dispensing steps. TADM verifies the sample transfer with a traceable digital audit trail. (NIMBUS4 only)



## ANTI-DROPLET CONTROL (ADC™)

ADC detects and reacts to pressure changes in real time for each pipetting channel that are caused by the high vapor pressure of volatile organic solvents. Upon activation, ADC prevents inadvertent dripping from the channels, reducing the risk of contaminating the deck. (NIMBUS4 only)



- A** Schematic sketch showing a pipetting channel with its pressure sensor. The volatile liquid contained in the tip evaporates into the air space.
- B** Pipetting without ADC, as the pressure in the tip increases, a droplet forms at the end of the tip, reducing the pressure in the tip when it falls off.
- C** Pipetting with ADC, pressure differences are detected by the pressure sensor and will be compensated in real time by plunger movements: droplet formation is prevented.

# INSTINCT Software

Hamilton's INSTINCT software provides an intuitive graphical user interface for simplified instrument control and streamlined method programming, allowing you to achieve results faster and with less training than ever before. Hamilton recognizes the critical role that instrument control software plays in overall system usability and end-user satisfaction.

## ◀ INSTINCT FEATURES SEVERAL TOOLS TO ENHANCE THE END-USER EXPERIENCE:

- ▶ Intuitive graphical user interface
- ▶ Designed for users in busy labs from beginner to advanced
- ▶ Labware Library
  - ▶ A comprehensive menu of commercially available microplates, deep-well plates, reagent troughs/tubs as well as the complete line of Hamilton's CO-RE disposable tips
- ▶ Favorites Tool
  - ▶ Enables quick selection of your most commonly used labware
- ▶ Liquid Class Tuner
  - ▶ An easy-to-use utility for selecting optimal pipetting parameters and improved liquid handling performance
- ▶ 3D Viewing
  - ▶ An intuitive tool for visualizing deck layouts

## ◀ SMART PIPETTING

Combining these preferences together with other user-defined input (e.g. pipetting volume), INSTINCT's built-in intelligence provides:

- ▶ Automated deck layouts
  - ▶ Auto-populates the pipetting deck with pedestals, microplates/tubes and tips, making setup of deck layouts a snap
- ▶ Automated tip tracking
  - ▶ Tracks tip usage, location and status of tip racks
- ▶ Smart plate movements
  - ▶ Auto-transporting of labware to destination or waste locations

## ◀ BASIC TASKS

For basic tasks, INSTINCT software features a series of dedicated Wizards available for commonly performed pipetting routines, each guiding you step-by-step towards final method creation. Examples of some of the wizards include:

- ▶ Serial dilutions
- ▶ Reagent additions
- ▶ Plate replications
- ▶ Tube to plate
- ▶ PCR setup
- ▶ SPE



## ADVANCED PROGRAMMING

For the most sophisticated methods, powerful VENUS software is also featured as standard. VENUS provides the flexibility to create or modify a complex method from scratch, ensuring that your requirements are never compromised. VENUS also features a range of utilities for:

- ▶ Worklist importing/exporting
- ▶ Error handling and recovery
- ▶ LIMS adaptation
- ▶ Database/server controls
- ▶ Scheduling
- ▶ Integrated third-party device control

## 21 CFR PART 11 REGULATORY TOOLS

VENUS software contains the software tools required to use NIMBUS in compliance with 21 CFR Part 11. The tools provide audit trails, user group defined security functionality and file fidelity with the checksum system.

PROGRESS BAR 1

GRAPHICAL STATUS OF PIPETTING VOLUMES 2

STEP-BY-STEP VIEW OF PROTOCOL 3

PLATE PROCESSING ORDER 4

CONNECTION STATUS INDICATOR 5

GRAPHICAL DISPLAY OF DISPENSE PATTERNS 6

FAVORITE LABWARE MENU 7

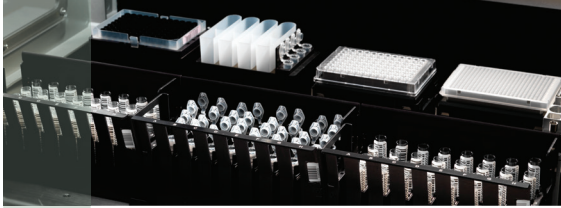
TOP-DOWN VIEW OF DECK LAYOUT 8

UNDO/REDO FUNCTION 9

The background of the page is a blurred photograph of a laboratory setting, featuring rows of test tubes in the foreground and a piece of laboratory equipment in the background. Overlaid on this image are several semi-transparent bar charts in shades of blue and green. The largest bar chart is at the bottom, with bars of varying heights. Another smaller one is in the middle, and a third is at the top right. The text is positioned in the upper left quadrant.

# Hamilton Integrated Options & Accessories

With a flexible deck layout, the NIMBUS accommodates a broad range of modular accessories and options to automate your assays. Reconfiguration of the deck is quick and easy, allowing you to incorporate new processes as your workflows change.



### ◀ SHIFT-N-SCAN TUBE BARCODE SCANNER

The Shift-n-Scan is an on-deck module for rapid reading of 1D barcoded tubes. Accommodating a wide variety of tube sizes, it's compatible with all major symbologies. (NIMBUS4 only)



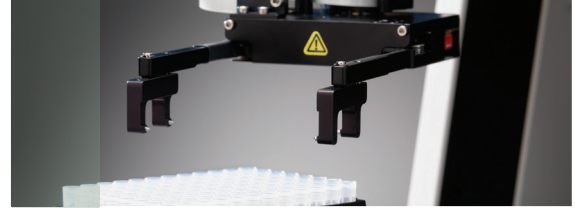
### ◀ HAMILTON HEATER SHAKER (HHS)

Hamilton's heater/shaker device offers efficient on-deck orbital shaking and heating up to 100°C. Accommodates a variety of SBS plates, from microliter to deep-well plates, and tubes.



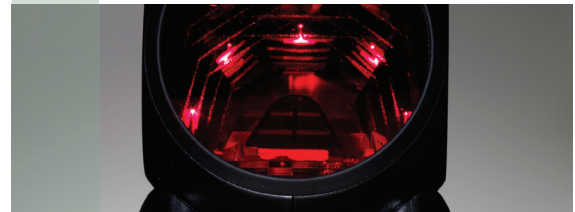
### ◀ NIMBUS VACUUM STATION (NVS)

Fully software-integrated vacuum system with adjustable pressure control, the NVS allows automation of SPE and other vacuum-based applications.



### ◀ LABWARE GRIPPER ARM

The NIMBUS Labware Gripper Arm option makes for quick and easy handling of single or stacked microplates, deep-well plates, lids and Hamilton's Nested Tip Racks (NTR). Extended reach and 270° of rotation allows for seamless handoffs to integrated devices located both on and off-deck.



### ◀ BARCODE SCANNER

Reads 1D barcodes microplates presented by Labware Gripper or CO-RE Paddles.



### ◀ CO-RE PADDLES

CO-RE paddles offer a cost-effective option for on-deck transport of labware. Using two pipetting channels in parallel, NIMBUS4 can transport plates or tips (NTR only) across the deck without the need for a dedicated labware gripper. (NIMBUS4 only)

# NIMBUS Accessories

## LABWARE PEDESTALS

### NTR Pedestal

Holds 1 – 4 x Nestable Tip Racks (NTR); also used for Small Tube Adapters



### 32-Tube Position Pedestal (12 x 75 – 13 x 100 mm)

Holds 32 x small sample tubes in one SBS position; accommodates the following tube sizes (diameter x height):

- ▶ 12 mm x 75 mm
- ▶ 12 mm x 100 mm
- ▶ 13 mm x 75 mm
- ▶ 13 mm x 100 mm



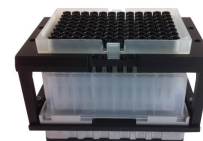
### MTP Pedestal

Holds 1 x standard SBS microtiter plate



### Tip Isolator Pedestal

Available for 50, 300 and 1000 µL tips with an integrated deep-well plate. The pedestal prevents cross contamination between re-used tips



### DWP Pedestal

Holds 1 x standard SBS deep-well plate; also used for PCR Tray Adapter



### 50 mL Conical 6-Tube Position

Holds 6 x 50 mL (e.g. Falcon brand) tubes; accommodates the following tube sizes (diameter x height)



### FTR Pedestal

Holds 1 x Framed Tip Rack of CO-RE disposable tips; also used for Filtered CO-RE tips



### 24-Tube Position Pedestal (16 x 75 – 17 x 100 mm)

Holds 24 x medium sample tubes; accommodates the following tube sizes (diameter x height):

- ▶ 16 mm x 75 mm
- ▶ 16 mm x 100 mm
- ▶ 17 mm x 75 mm
- ▶ 17 mm x 100 mm



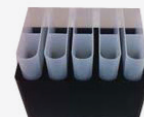
### MTP Labware Gripper & Paddle Stacking Pedestals

Holds a stack of up to 5 x standard SBS microtiter plates; used with Labware Gripper only



### Reagent Trough Pedestal

Holds up to 5 x 50 mL reagent troughs





## LABWARE ADAPTERS

### 96 PCR Tray Adapter

Accommodates most commercially available skirted, semi-skirted and unskirted 96-well PCR trays



### 384 PCR Tray Adapter

Accommodates most commercially available skirted, semi-skirted and unskirted 384-well PCR trays



### CO-RE Tip Adapter

Holds 96 x CO-RE tips; required to access single rows/columns of all Framed CO-RE tips and 10  $\mu$ L NTR tips



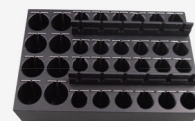
### Small Tube Adapter

Holds up to 32 x standard volume (approx 1.7 mL) conical reaction tubes or 1.8 mL cryovials; a slot feature keeps snap caps out of way to allow access for the pipetting channels



### Multi-Tube Adapter

Holds up to 24 x standard volume 1.8 - 2.0 mL conical tubes or 1.8 cryovials and up to (8) 5 mL standard vials



# Consumables

## CO-RE Tips (10 µL)



Available Options	Part Number	Case
10 µL Conductive Non-Sterile Filter Tips	235901	Case of 5,760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Non-Sterile Non-Filter Tips	235900	Case of 5,760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Sterile Filter Tips	235936	Case of 5,760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Sterile Non-Filter Tips	235935	Case of 5,760 tips (Blister 5 x 96 tips per rack)

## CO-RE Tips (50 µL)



Available Options	Part Number	Case
50 µL Conductive Non-Sterile Filter Tips	235948	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Non-Sterile Non-Filter Tips	235966	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Sterile Filter Tips	235979	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Sterile Non-Filter Tips	235978	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Non-Sterile Non-Filter Tips	235836	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Sterile Non-Filter Tips	235837	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Non-Sterile Filter Tips	235829	Case of 5,760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Sterile Filter Tips	235831	Case of 5,760 tips (Blister 5 x 96 tips per rack)

## Slim CO-RE Tips



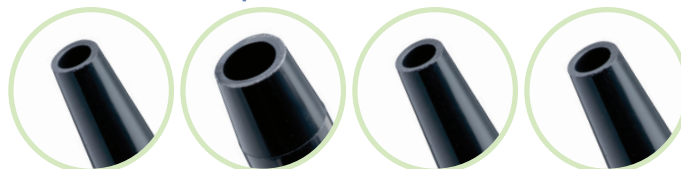
Available Options	Part Number	Case
300 µL Slim Conductive Non-Sterile Filter Tips	235647	Case of 3,840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Non-Sterile Non-Filter Tips	235806	Case of 3,840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Sterile Filter Tips	235646	Case of 3,840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Sterile Non-Filter Tips	235648	Case of 3,840 tips (Blister 5 x 96 tips per rack)

## CO-RE Tips (300 µL)



Available Options	Part Number	Case
300 µL Conductive Non-Sterile Filter Tips	235903	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Non-Sterile Non-Filter Tips	235902	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Sterile Filter Tips	235938	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Sterile Non-Filter Tips	235937	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Non-Sterile Non-Filter Tips	235834	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Sterile Non-Filter Tips	235835	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Non-Sterile Filter Tips	235830	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Sterile Filter Tips	235832	Case of 5,760 tips (Blister 5 x 96 tips per rack)

## Wide Bore CO-RE Tips



Orifice 1.2 mm      Orifice 3.2 mm      Orifice 0.71 mm      Orifice 1.55 mm

Available Options	Part Number	Case
300 µL Wide Bore (0.71 mm) Conductive Non-Sterile Filter Tips	235452	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (1.55 mm) Conductive Non-Sterile Filter Tips	235449	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (0.71 mm) Conductive Non-Sterile Non-Filter Tips	235688	Case of 5,760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (1.55 mm) Conductive Non-Sterile Non-Filter Tips	235451	Case of 5,760 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Sterile Filter Tips	235677	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Non-Sterile Filter Tips	235678	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Non-Sterile Non-Filter Tips	235679	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (3.2 mm) Conductive Non-Sterile Non-Filter Tips	235444	Case of 3,840 tips (Blister 5 x 96 tips per rack)

## Piercing CO-RE Tips



Available Options	Part Number	Case
250 µL Piercing Conductive Non-Sterile Filter Tips	235658	Case of 5,760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Non-Sterile Non-Filter Tips	235805	Case of 5,760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Sterile Filter Tips	235649	Case of 5,760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Sterile Non-Filter Tips	235659	Case of 5,760 tips (Blister 5 x 96 tips per rack)

## CO-RE Tips (1,000 µL)



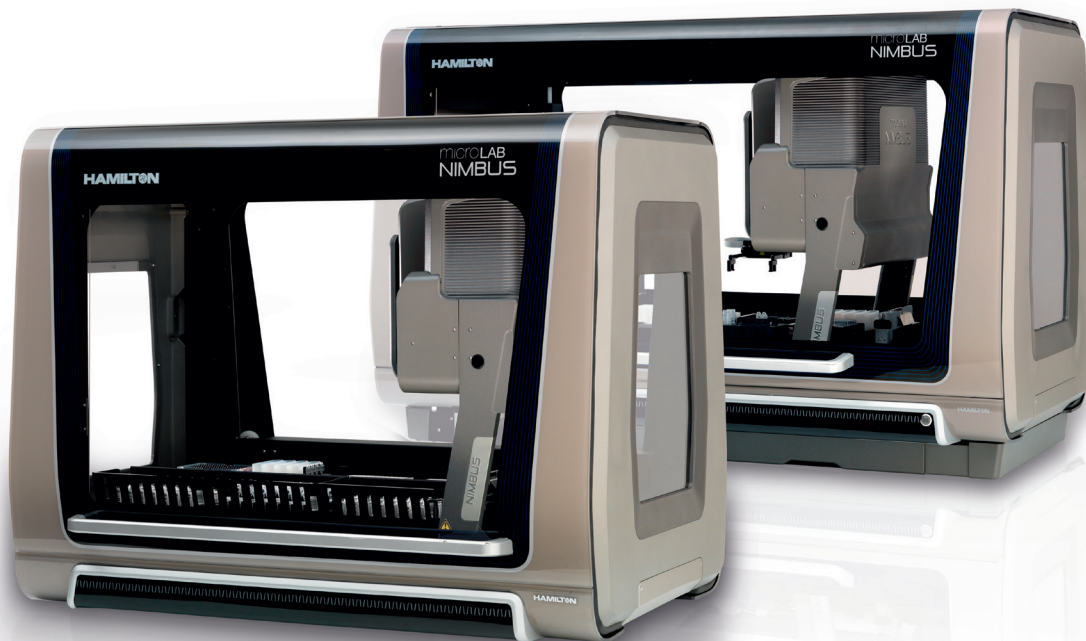
Available Options	Part Number	Case
1,000 µL Clear Non-Sterile Filter Tips	235820	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Clear Non-Sterile Non-Filter Tips	235822	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Clear Sterile Filter Tips	235821	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Clear Sterile Non-Filter Tips	235823	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Conductive Non-Sterile Filter Tips	235905	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Conductive Non-Sterile Non-Filter Tips	235904	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Conductive Sterile Filter Tips	235940	Case of 3,840 tips (Blister 5 x 96 tips per rack)
1,000 µL Conductive Sterile Non-Filter Tips	235939	Case of 3,840 tips (Blister 5 x 96 tips per rack)

## Nested 96-Tip Racks



NTR rack with 96 tips

Available Options	Part Number	Case
10 µL Nested Clear Non-Sterile Non-Filter Tips	235971	Case of 11,520 tips (NTR 5 x 4 stack)
10 µL Nested Conductive Non-Sterile Non-Filter Tips	235949	Case of 11,520 tips (NTR 5 x 4 stack)
10 µL Nested Conductive Sterile Non-Filter Tips	235983	Case of 11,520 tips (NTR 5 x 4 stack)
50 µL Nested Clear Non-Sterile Non-Filter Tips NTR	235964	Case of 11,520 tips (NTR 5 x 4 stack)
50 µL Nested Conductive Non-Sterile Non-Filter Tips NTR	235947	Case of 11,520 tips (NTR 5 x 4 stack)
50 µL Nested Conductive Sterile Non-Filter Tips NTR	235987	Case of 11,520 tips (NTR 5 x 4 stack)
300 µL Nested Clear Non-Sterile Non-Filter Tips NTR	235965	Case of 11,520 tips (NTR 5 x 4 stack)
300 µL Nested Conductive Non-Sterile Non-Filter Tips NTR	235950	Case of 11,520 tips (NTR 5 x 4 stack)
300 µL Nested Conductive Sterile Non-Filter Tips NTR	235985	Case of 11,520 tips (NTR 5 x 4 stack)



# NIMBUS Specifications

## ◀ NIMBUS4 TECHNICAL AND PERFORMANCE DETAILS

### Input Power (Primary)

Universal Supply 100 - 240 VAC, 50-60 Hz, 5A

### Output Power (Secondary)

Power +42 VDC +5%

Wattage 600 Watts maximum

**Power Supply** UL/CSA/CE approved universal power supply with IEC connection

### Physical Dimensions / Operating Dimensions

Standard Enclosed	Length	Width	Height	Weight
	41.2 in (104.6 cm)	27.9 in (70.9 cm)	32.7 in max (83.1 cm)	220 lbs (98.6 kg) approx.
Extended Enclosed	Length	Width	Height	Weight
	53.5 in (135.9 cm)	27.9 in (70.9 cm)	35.0 in max (88.9 cm)	250 lbs (98.6 kg) approx.

### Pipetting Specifications for Disposable Tips and 1000 µL Channels

Disposable tip size	Volume	Trueness  R  (%)	Precision CV (%)
10 µL	1 µL	5.0%	5.0%
10 µL	5 µL	2.5%	2.0%
10 µL	10 µL	1.5%	1.5%
50 µL	1 µL	5.0%	5.0%
50 µL	5 µL	2.5%	2.0%
50 µL	50 µL	2.0%	1.0%
300 µL	10 µL	5.0%	2.0%
300 µL	50 µL	2.0%	1.0%
300 µL	300 µL	1.0%	1.0%
1000 µL	10 µL	7.5%	3.5%
1000 µL	100 µL	2.0%	1.0%
1000 µL	1000 µL	1.0%	1.0%

For pipetting of less than 10 µL HAMILTON recommends 10 µL/50 µL volume disposable tips to achieve highest pipetting precision.

### Pipetting Specifications for Disposable Tips and 5 mL Channels

5 mL	50 µL	5.0%	2.5%
5 mL	500 µL	2.0%	1.5%
5 mL	1000 µL	1.5%	1.0%
5 mL	5000 µL	1.0%	0.5%

Liquid Level Detection Capacitive Liquid Level Detection (cLLD)

Independent Channels Pressure Liquid Level Detection (pLLD)

Communication Type Ethernet

### Operating

Temperature 15° to 35°C (59° to 95°F)

Relative Humidity 30% to 85% R.H. non-condensing

Altitude 0 – 2000 m above sea level

### Storage

Temperature -20°C (-4.0°F) @ 10% humidity to 70°C (158°F) @ 90% humidity non-condensing

### CSA Certification

Installation category II

Pollution degree 2

## ◀ NIMBUS96 TECHNICAL AND PERFORMANCE DETAILS

### Input Power (Primary)

Universal Supply 100 - 240 VAC, 50-60 Hz, 5A

### Output Power (Secondary)

Power +42 VDC +5%

Wattage 600 Watts maximum

**Power Supply** UL/CSA/CE approved universal power supply with IEC connection

### Physical Dimensions / Operating Dimensions

Extended Enclosed	Length	Width	Height	Weight
	53.5 in (135.9 cm)	27.9 in (70.9 cm)	35.0 in max (88.9 cm)	250 lbs (98.6 kg) approx.

### Pipetting Specifications for CO-RE 96 MPH

Disposable tip size	Volume	Accuracy  R  (%)	Precision CV (%)
10 µL	1 µL	5.0%	5.0%
10 µL	5 µL	2.5%	2.0%
10 µL	10 µL	1.5%	2.0%
50 µL	1 µL	5.0%	5.0%
50 µL	5 µL	2.5%	2.0%
50 µL	50 µL	1.5%	0.75%
300 µL	10 µL	3.0%	2.0%
300 µL	50 µL	1.5%	2.0%
300 µL	300 µL	1.0%	2.0%
1000 µL	10 µL	1.0%	0.75%

Liquid Level Detection CO-RE 96 MPH Capacitive Liquid Level Detection (cLLD) Channels A1 and H12

Communication Type Ethernet

### Operating

Temperature 15° to 35°C (59° to 95°F)

Relative Humidity 30% to 85% R.H. non-condensing

Altitude 0 – 2000 m above sea level

### Storage

Temperature -20°C (-4.0°F) @ 10% humidity to 70°C (158°F) @ 90% humidity non-condensing

### CSA Certification

Installation category II

Pollution degree 2

# Support & Service

Outstanding. Reliable. Everywhere.

## ◀ OUTSTANDING

Hamilton's service organization is committed to providing the best, quality service and support in the industry. Worldwide, we offer highly qualified support from local service engineers. Trained by certified Hamilton trainers, these engineers are supported by our local service headquarters and distribution partners.

Hamilton's commitment to high quality standards is evident not only in our ISO 9001 certification, but also in the ongoing training provided to all of our service engineers. With Hamilton as an automation partner, feel confident that you'll receive the best support possible.

## ◀ RELIABLE

Investment in a high-performance liquid handling system sets high expectations of quality, reliability and precision. From in-house manufacturing to state-of-the-art quality control systems and final inspection, Hamilton guarantees high standards for all of our products. Reliability is an essential part of our products and our support team. From our technical support hotline to local service engineers and dedicated application specialists, know that Hamilton is available with qualified support teams.

## ◀ EVERYWHERE

Our field service and support network links our headquarters with our worldwide subsidiaries to ensure quick response time thus minimizing downtime. Whether you need routine maintenance, service, or application support, Hamilton is there to support you. Customer satisfaction has the highest value at Hamilton and we've built our worldwide support network to meet all of your needs.

## ◀ SYSTEM INSTALLATION

All Hamilton instruments are installed according to strict procedures in conformity with ISO 9001. Each systems includes a comprehensive Installation Qualification (IQ) and detailed documentation.

## ◀ SERVICE CONTRACTS

Ensure the longevity of your robotic system by choosing a Hamilton service contract. Service contracts include regular monitoring and preventative maintenance for peak performance of your system. Allowing service costs to be budgeted in advance, we offer three levels of service and support contracts to meet the various needs of our customers.

## ◀ TRAINING COURSES

Hamilton training courses can follow an established generic structure suitable for a variety of users, or courses can be tailor-made to meet particular needs. Combining theoretical knowledge with practical applications, our courses provide comprehensive understanding of the content to the trainee. All participants receive a certificate or course confirmation letter from Hamilton upon successful completion of each course. Training courses take place at our headquarters and can be provided in your local subsidiary or on-site at your facility when needed.

# About Hamilton

## The Measure of Excellence®

Hamilton Company specializes in the development, manufacturing and customization of precision measurement devices, automated liquid handling workstations, and sample management systems.

Hamilton's processes are optimized for quality and flexibility. Whether it's a custom needle with a quick delivery timeframe, a special length pH sensor, or a comprehensive solution to fully automate your assay workflow, trust that Hamilton's products will always meet your needs.

### OUR COMPLETE PORTFOLIO



#### Laboratory Products

Laboratory Products manufactures Microliter™ and Gastight® syringes that set the standard for analytical fluid measurement. Other products include custom needles, semi-automated diluters and dispensers, polymeric HPLC columns, pH electrodes, pipettes, and more.



#### Robotics

Hamilton Robotics provides automated liquid handling workstations and laboratory automation technology for the scientific community. With a focus on innovative design, our products incorporate Hamilton's patented liquid handling technologies for fully automated solutions. In addition to liquid handling platforms, we also offer application-specific solutions, small devices, and consumables.



#### Storage

Hamilton Storage offers ultra-low temperature automated sample management systems for storage of a variety of labware. Hamilton's line of biobanking and compound management systems, benchtop devices and consumables are designed for sample integrity, flexibility, and reliability.



#### Process Analytics

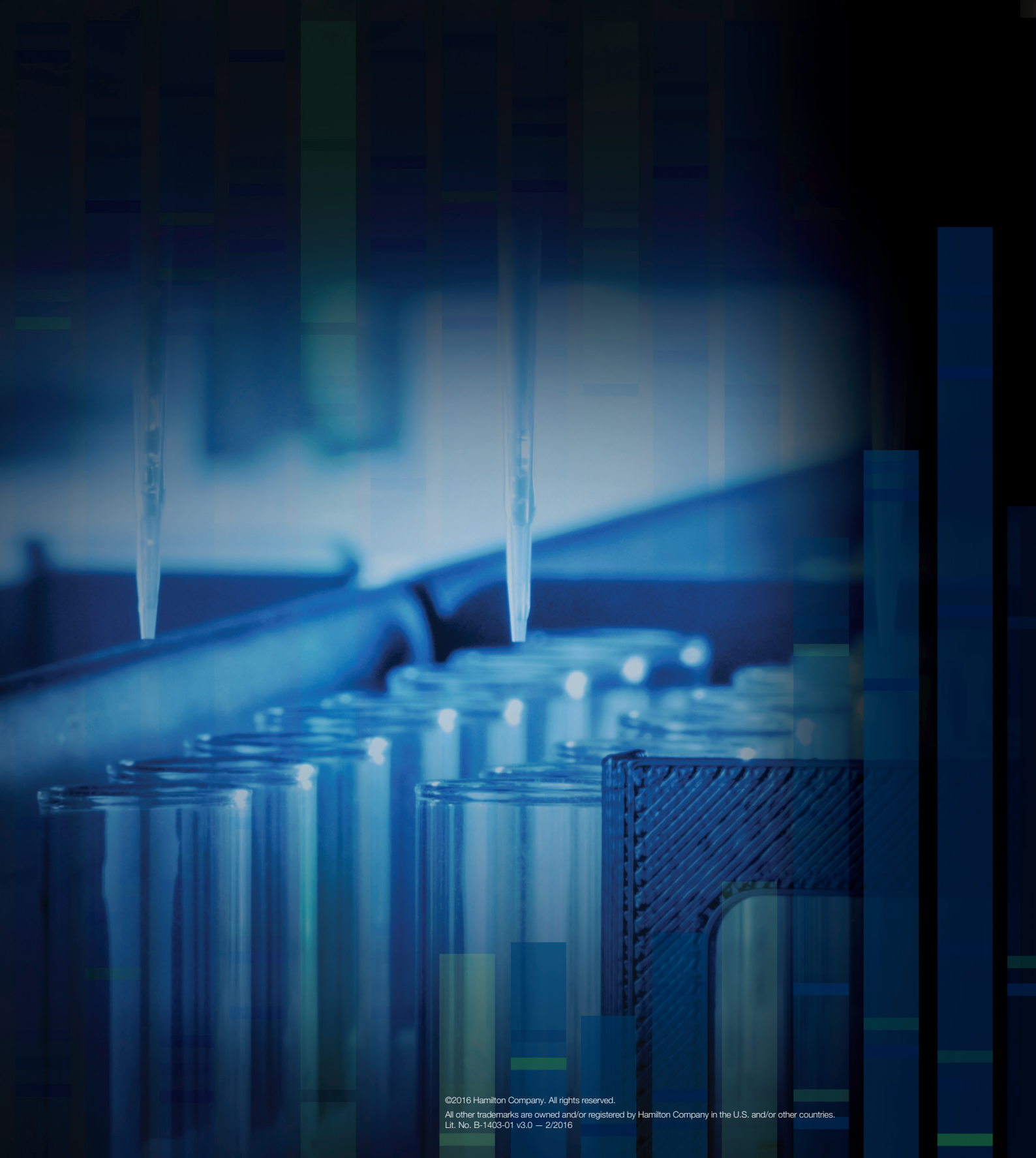
Process Analytics includes innovative solutions for the online measurement of pH, dissolved oxygen, conductivity, ORP, viable cell density and total cell density. Hamilton's proprietary Arc® intelligent sensor technology eliminates the need for transmitters and moves the functionality to your smartphone or tablet.



#### OEM Solutions

Many of the world's top manufacturers utilize Hamilton products and expertise to get their innovations to market faster with lower development and manufacturing costs. As an OEM partner, we offer the ability to integrate our proven syringe pumps or pipetting channels, customize our proven liquid handling platforms or design a complete system to automate your novel chemistry.

Hamilton Company has been a leading global manufacturer for more than 60 years, with headquarters in Reno, Nevada; Franklin, Massachusetts; Timișoara, Romania; and Bonaduz, Switzerland; and subsidiary offices throughout the world.



©2016 Hamilton Company. All rights reserved.  
All other trademarks are owned and/or registered by Hamilton Company in the U.S. and/or other countries.  
Lit. No. B-1403-01 v3.0 – 2/2016

**HAMILTON** 

**United States**

Tel: +1-775-858-3000

**United Kingdom & Ireland**

Tel: +44 (0)121-717-0199

**Brazil**

Tel: +55 (11) 126-50562

**China**

Tel: +86-21-6164-6567

**France**

Tel: +33 (01) 69751616

**Italy**

Tel: +39-039-930-06-06

**Denmark, Norway,  
Sweden, Finland**

Tel: +46-8410-273-73

**Germany, Switzerland,  
Austria, Benelux**

Tel: +49-89-248-804-804

Web: [www.hamiltoncompany.com/Microlab-NIMBUS](http://www.hamiltoncompany.com/Microlab-NIMBUS)  
Email: [infoservice@hamiltonrobotics.com](mailto:infoservice@hamiltonrobotics.com)

To find a representative in your area, please visit [hamiltoncompany.com/contacts](http://hamiltoncompany.com/contacts).