

HAMILTON 

Microlab[®] 700 Series

Smart Liquid Handling





CROLAB
600 Series



Ready
Status
Alarm



Quick Start

Dispense from left and right syringe

IN - OUT

Volume in µL
3000



3,000.0 µL

Refill OFF

Main Menu

HAMILTON



Microlab® 700 Series
Smart Liquid Handling



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Introducing the Microlab[®] 700

The Microlab 700 is a highly precise syringe pump with a new generation touchscreen controller that brings a superior technological solution, an interface designed to quickly and easily dilute and dispense fluids. This positive displacement system provides better than 99% accuracy, independent of a liquid's viscosity, vapor pressure, and temperature. The inert fluid path minimizes sample carryover and is compatible with harsh chemicals.

All Laboratories can use the Microlab 700

Every laboratory has tasks too small to automate and too large to reliably accomplish by hand. The Microlab 700 is a semi-automated liquid handler designed specifically for these in-between applications that increase throughput and consistency while reducing cost and wasted buffer. Common industries using the product are:

- Pharmaceuticals
- Biotechnology
- In-Vitro Diagnostics
- Forensics
- Food and Beverage Industry
- Dairy Industry
- Environmental Analysis
- Mining Industry
- Textile Industry





Advantages of the new Microlab 700 Controller

- ✓ Innovative possibilities for communication options
- ✓ A full range of peripherals and documentation solutions
- ✓ Remote Diagnostic Support and Analysis
- ✓ Smart data storage
- ✓ Designed for easy integration into LIMS systems
- ✓ Comply with FDA GLP and GMP, 21 CFR Part 11



Dual Syringe Diluters

Concorde Hand Probe

The Dual Syringe Diluter configuration uses two syringes to create up to a 1:50,000 dilution in a single step, drastically reducing preparation time and wasted buffer. The diluent washes the tubing between each sample, minimizing carryover for even the most sensitive techniques including:

- Atomic absorption (AA)
- Inductively coupled plasma spectroscopy (ICP)
- High performance liquid chromatography (HPLC)
- Gas chromatography (GC)
- Liquid scintillation



Step 1

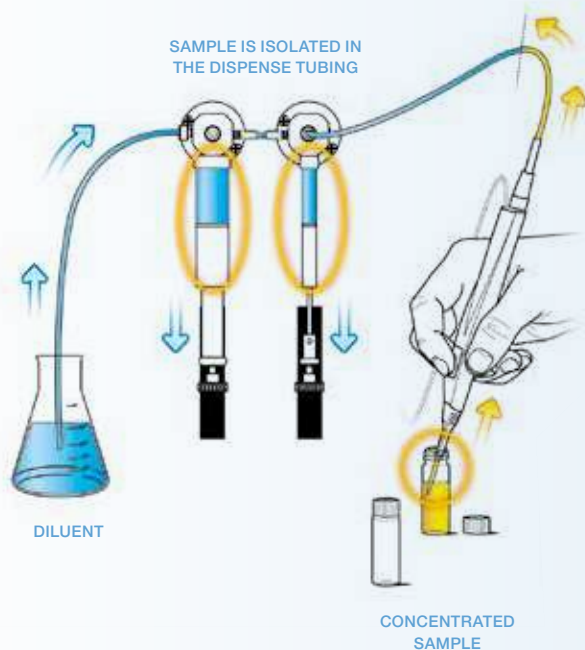
Program sample and diluent volume.

Step 2

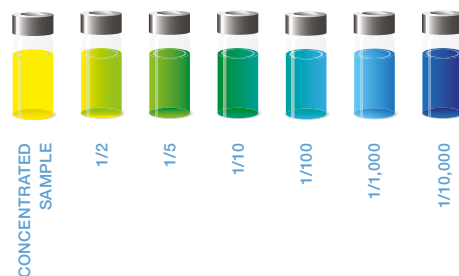
Trigger the hand probe to fill left syringe with diluent and aspirate sample into the hand probe with the right syringe.

Step 3

Trigger the hand probe to dispense the sample and then the diluent into the vial to complete the dilution and wash the tube for the next sample.



How Does It Work?

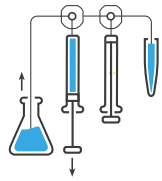


Dilution Wizard

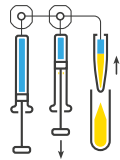
Accurately dilute concentrated samples with diluent over a wide range of dilution ratios.

Dual Syringe Dilution

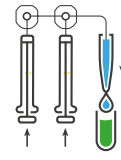
FILL WITH DILUENT FROM THE RESERVOIR



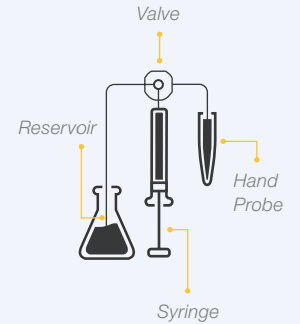
ASPIRATE SAMPLE INTO THE HAND PROBE



DISPENSE SAMPLE AND DILUENT



Icon Key



Color Guide

- Diluent 1 / System Fluid
- Sample
- Diluted Sample
- Standard
- Diluted Sample + Standard

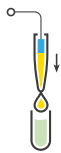
Serial Dilution (Programmed)

Repeat the steps for single or dual dilution with varying dilution ratios and the same final volume.

1/10



1/25



1/50



1/100



Serial Dilution (Tube to Tube)

Repeat the steps for single or dual dilution and use the resulting dilution as the sample for the next dilution.

SAMPLE



1/10



1/100

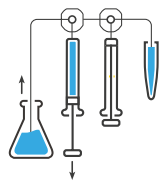


1/1000

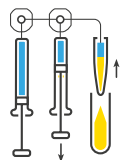


Multi Sample Dilution (or Internal Standard Addition)

FILL WITH DILUENT FROM THE RESERVOIR



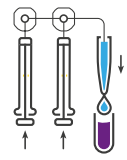
ASPIRATE SAMPLE INTO THE HAND PROBE



ASPIRATE STANDARD INTO THE HAND PROBE



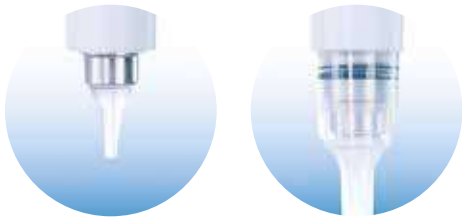
DISPENSE STANDARD, SAMPLE, AND DILUENT



Diluter Ordering Information

Part number	Product name	Description
10103468	ML715-DIL	Dual syringe diluter with Advanced controller
10103471	ML725-DIL	Dual syringe diluter with Premium controller

The -DIL model ships with the Concorde hand probe, universal valves, fill/dispense tubing, accessory holder, country-specific power cord, and the choice of two syringes. If syringes are not selected at the time of the order, 2.5 mL and 250 µL syringes are included.



Disposable Tip Hand Probe (DTHP)

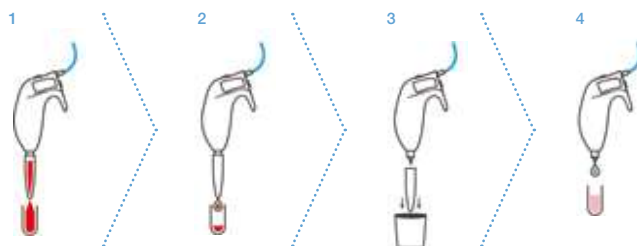
For sensitive applications, the sample is aspirated into a disposable plastic tip which is thrown away between each sample, eliminating any chance for carryover. Applications that benefit from the DTHP include:

- Forensics – for some applications regulatory considerations make disposable tips the preferred option
- Sterile samples – sterile disposable tips can be used to avoid transferring contamination between sample vessels
- DNA amplification – for applications where a single amplified strand of DNA is enough to impact results



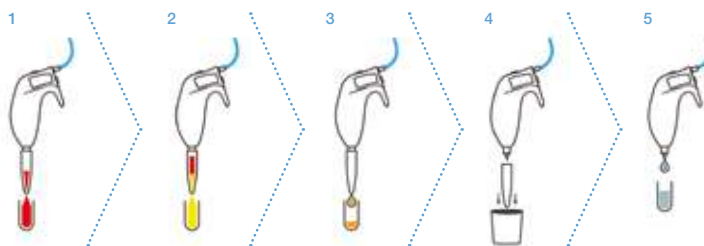
Dilution Options

Single Sample Dilution



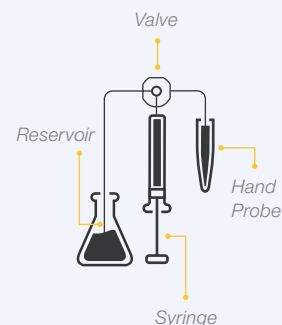
- 1 The trigger is pressed and the sample is aspirated into the tip using the right syringe while diluent is drawn into the left syringe
- 2 The trigger is pressed again and the sample is dispensed from the tip
- 3 The tip is ejected
- 4 Another trigger dispenses the diluent to complete the dilution

Multi Sample Dilution



- 1 Aspirate Sample 1 into ClickSure Tip
- 2 Aspirate Sample 2. Repeat with additional solutions
- 3 Dispense Samples
- 4 Discard ClickSure Tip
- 5 Dispense Diluent

Icon Key



Color Guide

- Sample 1
- Sample 2
- Dispensed Samples
- Diluted Sample
- Diluted Samples

Disposable Tip Hand Probe Ordering Information

Part number	Product name	Description
10103470	ML725-DTHP	Microlab 700 Diluter with Disposable tip Hand probe

ClickSure Tips for DTHP Ordering Information

Part Number	Description	Part Number	Description
235537	50 µL, non-sterile ClickSure Tips, 960 tips, racked	235539	1 mL, non-sterile ClickSure Tips, 960 tips, racked
235543	50 µL, non-sterile ClickSure Tips, 960 tips, bulk	235545	1 mL, non-sterile ClickSure Tips, 960 tips, bulk

The -DTHP model ships with the Disposable Tip Hand Probe, universal valves, fill tubing, Cable Management System, country-specific power cord, and the choice of two syringes. If syringes are not selected at the time of the order, 2.5 mL and 250 µL syringes are included.

Dispensers

The Microlab 700 is able to dispense volumes from 100 nL to 50 mL and uses positive displacement syringes to accurately dispense volatile, viscous, and dense liquids independent of atmospheric influences. The inert fluid path is compatible with harsh chemicals, making the Microlab 700 the most reliable and robust dispensing system available.



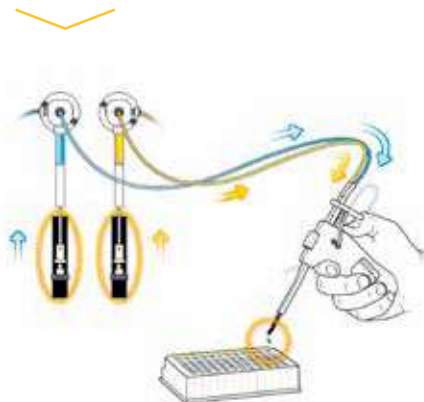
Single Syringe Dispenser

The syringe fills from a reservoir and dispenses from the hand probe.



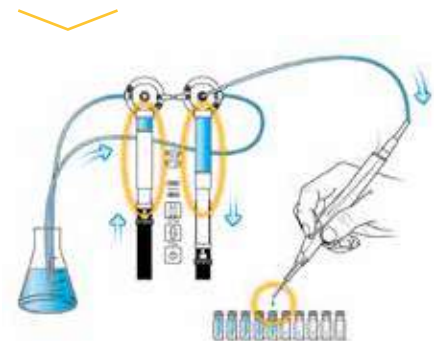
Dual Syringe Dispenser

Each syringe fills from a separate reservoir and dispenses separately from the hand probe.



Continuous Dispenser

One syringe fills while the other syringe is dispensing from the same reservoir.



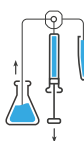


Aliquot Dispense Wizard

Repetitively dispense aliquots of the same volume at the press of a button.

Single Syringe Aliquot or Serial Dispense

FILL FROM RESERVOIR



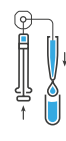
DISPENSE THROUGH HAND PROBE



DISPENSE



DISPENSE

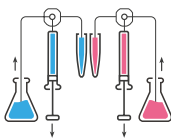


Serial Dispense Wizard

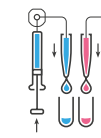
Repetitively dispense aliquots of differing volumes at the press of a button.

Dual Syringe Aliquot or Serial Dispense

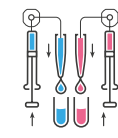
FILL FROM RESERVOIR



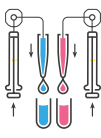
DISPENSE THROUGH HAND PROBE



DISPENSE



DISPENSE



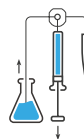
Titration Wizard

Slowly add liquid to another liquid until an end-point is reached. An example of this application is adding acid or base to a pH buffer.

Titration

A large initial volume is dispensed to get close to the endpoint. Then a smaller step volume is dispensed until the endpoint is reached.

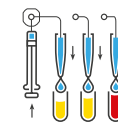
FILL FROM RESERVOIRS



DISPENSE THE INITIAL VOLUME



DISPENSE THE STEP VOLUME



Pipette Wizard

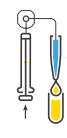
Simulate a manual pipette used to transfer liquid from one vessel to the next.

Pipette

ASPIRATE SAMPLE INTO THE HAND PROBE



DISPENSE SAMPLE FROM THE HAND PROBE



Color Guide

- Reagent 1 / System Fluid
- Reagent 2
- Sample
- Titration Endpoint

Dispenser Ordering Information

Part number	Product name	Description
10103458	ML710-DIS	Single Syringe Dispenser with Advanced Controller
10103460	ML720-DIS	Single Syringe Dispenser with Premium Controller
10103461	ML715-DIS	Dual Syringe Dispenser with Advanced Controller
10103464	ML725-DIS	Dual Syringe Dispenser with Premium Controller
10103465	ML715-CNT	Dual Syringe Continuous Dispenser with Advanced Controller
10103467	ML725-CNT	Dual Syringe Continuous Dispenser with Premium Controller

All dispensers ship complete with a Concorde hand probe (the dual -DIS uses the Dual Push Button hand probe), universal valve(s), fill/dispense tubing assembly, accessory holder, country-specific power cord, and the choice of syringes. If no syringe(s) are selected at the time of the order the -DIS will ship with 1 mL syringe(s) and the -CNT will ship with 10 mL syringes.

Standalone Syringe Pumps

Simple to Integrate

Take full command of your diluting and dispensing applications with the Microlab 700 standalone syringe pump. The standalone syringe pump allows you to custom program methods and deploy commands to any instrument on your network from anywhere in the world, giving you unparalleled control of your process.

PROGRAM YOUR
OWN METHODS IN

Visual C#®
Visual Basic®
LabVIEW™





Choose Ethernet or RS-232 Communication

Choose Ethernet Communication if

- The application requires control over all details of the pump like the front LED lights, acceleration speeds, custom initialization routines, etc.
- Remote control or monitoring of the pump is important. This includes dispensing in restricted environments like clean rooms, rooms with high radioactivity, or chemical contamination, etc.
- Development is being done in a Microsoft .NET 2.0 programming environment. The API simplifies programming with on screen help in an industry standard format.

Choose RS-232 Communication if

- The control device is a Programmable Logic Controller.
- The control device is not a PC running Windows® or the programming language is not compatible with Microsoft® .NET 2.0 framework.
- The application has already been implemented using an older RS-232 device like Microlab 500.
- The application requires the use of another Hamilton RS-232 device like Modular Valve Positioner.

Standalone Pump Ordering Information

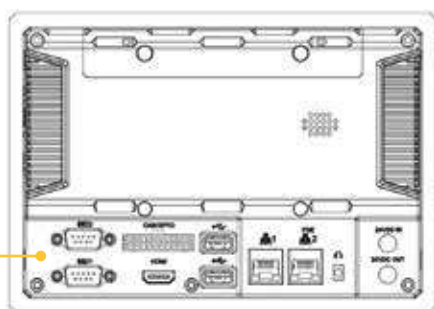
Part Number	Description
ML630	Single Syringe Pump
ML635	Dual Syringe Pump

All standalone pumps ship complete with a universal valve(s), country-specific power cord, Custom Programmer kit, and choice of syringes. If no syringe(s) is/are selected at the time of the order 1 mL syringe(s) will be included automatically.

Microlab 700 Hardware

Controller Features

The Microlab 700 controller features a large, easy-to-use touchscreen with a performant processor, two USB ports for connection of RFID scanner, QR/Barcode scanner, USB flash drive; two RS232 Port for connection of balances, label printer; two Ethernet Ports for connection to Microlab base unit and network.



Microlab 700 Connectors

Connector	Interface	Function
IOIO #1	RS232C COM1	Analytical or precision balance
IOIO #2	RS232C COM2	Label printer, Log printer
Micro SD card slot	Micro SD	Slot for SD cards up to 64 GB
USB-A #1	USB 2.0 host	Slot for micro SD cards up to 64 GB
USB-A #2	USB 2.0 host	RFID-scanner, QR code scanner
RJ-45 #1	LAN-1 100M	Microlab 700 base unit
RJ-45 #2	LAN-2 100M	LAN for intranet and internet
Power Jack IN	24VDC IN	Power input from DC power cable
Power Jack OUT	24VDC OUT, 3A max	Power output for Microlab 700 base unit
Wi-Fi	802.11 a/b/g/n 2.4 GHz	Wireless LAN for intranet and internet
Bluetooth 4.0	2402MHz-2480MHz	Used for accessories in future



Syringe Pump Features



MICROLAB LABEL PRINTER



MICROLAB DIGITAL SCANNER



MICROLAB RFID READER

The Microlab 700 is available as a single or dual syringe system. The high torque, precision stepper motors provide unsurpassed positional accuracy across the full range of Hamilton syringes from 10 μ L to 50 mL. The instrument communicates with the controller or a corporate network via an Ethernet port. Serial communication via RS-232 is also possible for programming in a non Windows® environment.



- 1 High torque valve motors
- 2 Precision syringe drives with 48,000 step resolution over 60 mm
- 3 Illuminated power and prime buttons
- 4 Independent left and right trigger ports



- 5 Fanless heat vent
- 6 24 volt power input
- 7 CAN daisy chain input/output
- 8 RS-232 console port
- 9 Power over Ethernet (PoE)
- 10 TTL input/output

Controller Accessories

Part number	Product name
10106736	Microlab RFID Reader
10106738	Microlab Digital Scanner
10106739	Microlab Label Printer*
10106806	Labels for Microlab Label Printer

* Power supply cord will be selected from page <?>

Microlab Software

NEW UTILITIES



New Utility Menus

- Easy to access and human readable error log
- Audit Trail viewer
- Update software via internet
- Update software via USB flash drive / SD card
- Log Viewer: Logs can be opened with PDF viewer, directly on the controller screen
- Possibility to create a full encrypted system backup and device specific (protected to access only for a specific device)
- Restore function

UPDATED WIZARD



Dry Weight Dilution 2.0

- Improved usability
- Save to favorites
- Support of many balance models (Mettler, Sartorius, Kern, Ohaus)

NEW CLEANING FEATURES



Cleaning features

- Cleaning reminder (time period-based)
- Cleaning reminder (cycle count based)
- Auto reset of reminder after cleaning

MAINTENANCE

Maintenance features

- Error statistics
- Maintenance reminder (date-based)
- Maintenance warning (time period-based)

NEW USER SUPPORT



New Help Menu

- Send emails to customer support directly from device
- Read user manual directly from device
- Screen sharing (Remote control)
- Tutorial videos
- Easier understanding of the Microlab platform functionalities through the new help menu

NEW CONFIGURATIONS



New LyncStore 700 Menu

Premium Version only

- Add LyncStore Account
- Sync Log files
- Sync Audit Trail
- Sync Custom Methods
- Sync Favorite Methods (created by means of the existing Wizards)
- Allow Remote Access



New Communication Menu

- Manage WLAN
- Manage LAN
- Manage external devices & accessories



New GLP Printer Menu

- Configure GMP/GLP complaint print content (Protocol Printer)



New Security Settings

- Multiple Administrator accounts
- Enable Audit Trail Dialogs (Parameter change must be justified)
- Enable PDF signatures
- Automatic sign out after X minutes
- Sign-in with RFID card



Advanced Controller Software

The controller is ideal for completing simple diluting and dispensing tasks. Quickly set the desired volume in the Quick Start Run Screen and begin.


Simple Diluting

Diluent is drawn by the left syringe and sample is drawn into the tubing by the right syringe. Both syringes dispense to complete the dilution.

Simple Dispensing

Solvent is drawn into the syringe and dispensed out through the hand probe.

Run Screen



Quick Start

Dispense from left and right syringe

IN - OUT

Volume in μL : 3,000

Volume in μL : 1,000

3,000.0 μL 1,000.0 μL

Main Menu


Help Run

Press this button to adjust the dispense volume at any time

Graphical status of the current valve and syringe position

Toggle the Auto Refill button ON and OFF

Configuration Screen



Microlab 700

Quick Start

Wizards

Custom Methods

Configuration

Utilities

Help

Custom Method Scan Log Scan Favorites

Dedicated Wizards for aliquot dispensing, serial dispensing, dilution, pipetting, and titration

Create custom applications not covered by a Wizard

Help menu (see on the left)

Press to proceed to the Run screen

Configure valves, syringes, system settings, view firmware revision, etc.

Review system logs and run system updates

Controller



Compliance and Logging

The software provides a variety of security protections, simplifies adherence to FDA GXP regulations, ability to administer user accounts and passwords, create log files that conform to 21 CFR Part 11 and manage log files on a PC using the LyncStore application.



Language Support

The Microlab 700 features language support for English, Spanish, German, French, Italian, and Chinese.



Archiving and Sharing Methods

Favorites and Custom Methods are stored on the Internal Storage or external: USB, microSD or remotely by LyncStore connectivity.

Wizards

Wizards are designed to simplify the programming of common everyday methods. The controller ships with the most popular Wizards installed but it is simple to add or delete Wizards from the menu. Visit www.hamiltoncompany.com/microlabwizards to see a complete list of available Wizards.

The screenshot displays the controller's user interface. The top section is titled "Wizards" and contains six icons for different methods: Allquot, Serial Dispense, Dilution, Dry Weight Dilut, Titration, and Pipette. A yellow callout line points to the Dilution icon with the text "Wizards that come installed on the controller". Below the Wizards menu is a "Main Menu" button and a "Favorites" button with a star icon. A yellow callout line points to the Favorites button with the text "Favorites store frequently used Wizard settings for later use". The bottom section is titled "Test Method" and shows two pipette tips. The left tip is labeled "1,000.0 µL" and the right tip is labeled "0.0 µL". The screen displays "Volume in µL" as 0 and 500, "Current Step: 2 / 3", and "Current Method Repeats: 1". A yellow callout line points to the pipette tips with the text "On screen instructions tell the user exactly what to do at each step".

Custom Methods

Custom methods can be created to accomplish unique liquid handling tasks. Incorporate loops, delays, external triggering, and execution counters with valve and syringe movements to create complex methods.

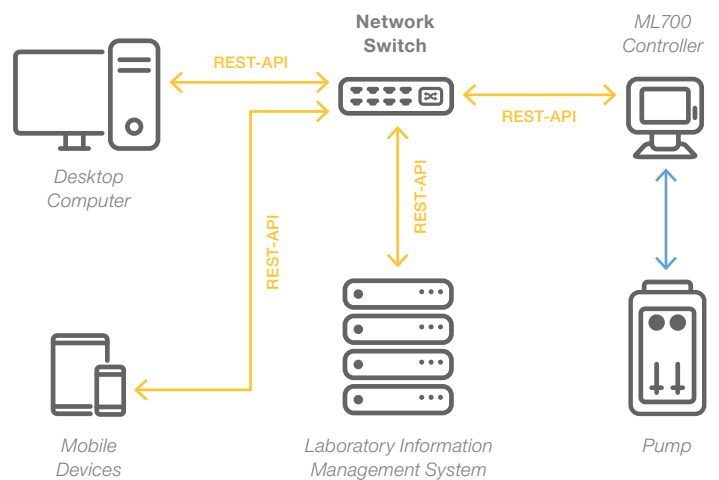




Premium Configuration

LyncStore 700 features

- Best-Practice API documentation with swagger
- Compliant with 21 CFR Part 11
- API comes with a web interface
- Realtime access to Microlab 700
- Automatic data backup
- Remote control



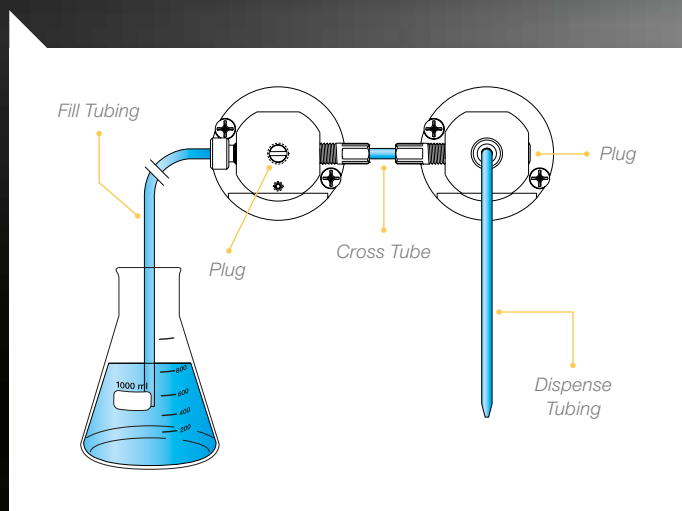
Premium Configuration Screen

Universal Valves

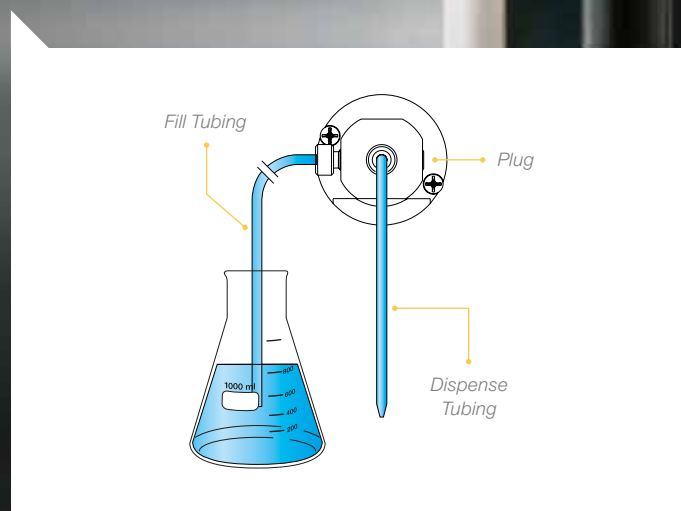
Innovative fluid logic allows the same universal valve to be used in all Microlab 700 diluting and dispensing applications. Interchange the valve plugs and tubing to achieve the following configurations in a matter of minutes.

Valve Plumbing Based on Instrument Configuration:

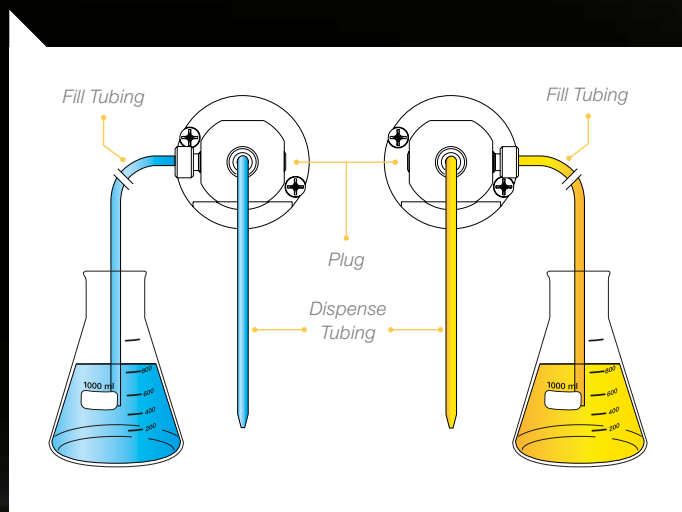
Dual Syringe Diluter



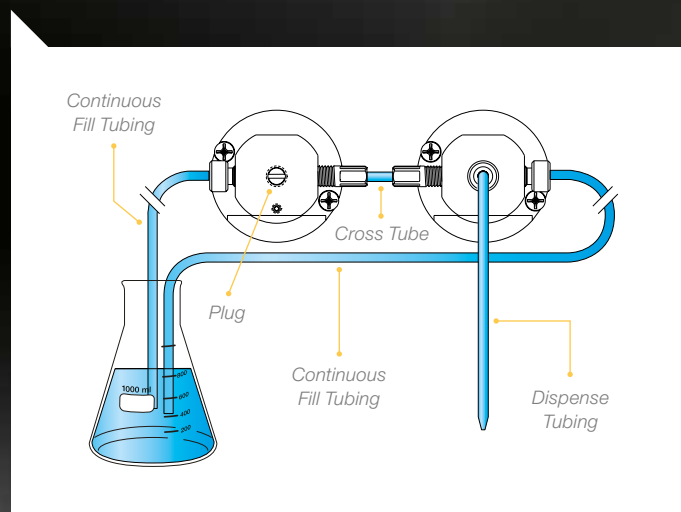
Single Syringe Dispenser



Dual Syringe Dispenser



Continuous Dispenser



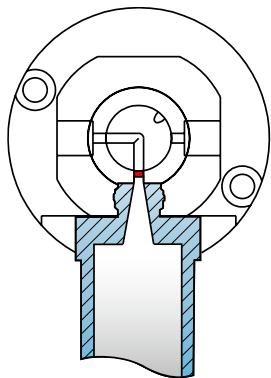
Bubble Free Prime Syringes

For any syringe pump, the key to achieving the most accurate dispenses is eliminating all air from the fluid path. Traditional syringes trap approximately 50 μL of air between the tip of the syringe and the valve. For small syringes, this trapped air is the last to leave the syringe and the first to be drawn back in, making them difficult if not impossible to prime.

The Bubble Free Prime syringe has a conical plunger tip that extends through the threaded termination and into the valve. This unique design expels the air from the syringe and valve decreasing the number of priming cycles required.

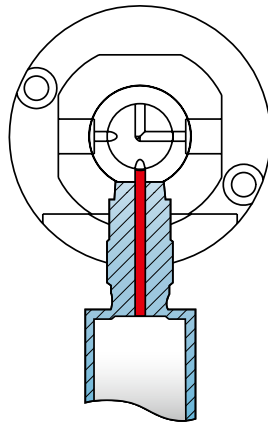
Patented conical tip extends through the threaded termination and into the valve

Bubble Free Prime Syringe



Bubble Free Prime syringes eliminate air from the fluid path

Standard Syringe



Traditional Luer Lock syringes trap approximately 50 μL of air, making small syringes nearly impossible to prime

VS.



Color Guide



Trapped Air



Syringe

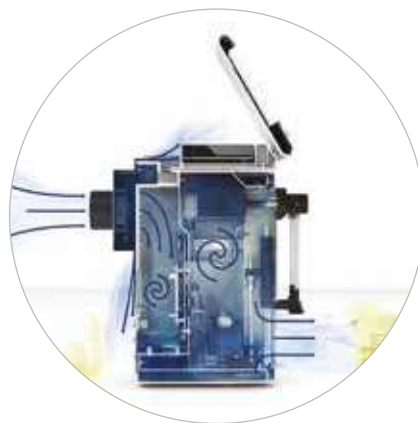


Plunger

Accessories

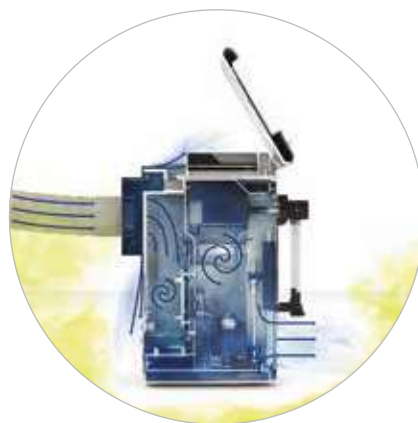
Protect Your Investment with AirShield

The AirShield is a separate accessory that can be purchased for any Microlab 700 instrument. It creates a positive pressure blanket of fresh air inside the pump that pushes air out over critical components on the outside of the pump, protecting them from the environment.



Localized Harsh Environment

In many labs the air is relatively clean but samples and reagents placed near the instrument result in a localized environment that can be harmful. For these labs, it is sufficient to source clean air from the back of the instrument away from the microenvironment.



Optional Snorkel for Fresh Air Supply

For labs with a more demanding atmosphere it is possible to source clean air via a snorkel that connects directly to the AirShield. Fresh air is then brought from outside the harmful environment to create a shield of clean air around all critical instrument components.





LUER LOCK CONVERSION KIT
P/N 58381-01



DUAL PUSH BUTTON HAND PROBE
Standard with the Dual Syringe Dispenser



DISPOSABLE TIP HAND PROBE
0.5–1000 μ L

CONCORDE CT HAND PROBE
Standard with the Single Syringe Dispenser,
Dual Syringe Diluter, and Continuous Dispenser



LARGE VOLUME DISPOSABLE TIP HAND PROBE
1–5 mL

Hand Probes, Foot Switch, and Printer Kit



FOOT SWITCH

Accessories

Part Number	Description
61401-01	Concorde CT Hand Probe
62541-01	Dual Push Button Hand Probe
63960-02	Disposable Tip Hand Probe (0.5–1000 μ L)*
62575-01	Large Volume Disposable Tip Hand Probe (1–5 mL)
75702	5 mL Disposable Tips (250/pk)
62576-01	Foot Switch
68562-01	AirShield
93009-01	AirShield Tubing (includes tubing clamp)

* Tips for this probe can be found on page 9

Replacement Parts

Syringes and Power Supplies






Standard Syringes

Part Number	Syringe Size	Optimal Range
59000-05	10 μ L	1–10 μ L
59000-10	25 μ L	2.5–25 μ L
59000-15	50 μ L	5–50 μ L
59000-20	100 μ L	10–100 μ L
59000-25	250 μ L	25–250 μ L
59000-30	500 μ L	50–500 μ L
59000-35	1.0 mL	100 μ L–1.0 mL
59000-40	2.5 mL	250 μ L–2.5 mL
59000-45	5.0 mL	500 μ L–5.0 mL
59000-50	10.0 mL	1–10.0 mL
59000-55	25.0 mL	2.5–25.0 mL
59000-60	50.0 mL	5–50.0 mL

SaltLine Syringes

Part Number	Syringe Size	Optimal Range
208335	1 mL	100 μ L–1.0 mL
208336	5 mL	500 μ L–5.0 mL
208337	10 mL	1–10.0 mL

Power Supply & Power Cords

Part Number	Description	Diagram of Plug
61092-01	Power Supply Universal (110–220 VAC)	
355234	Continental Europe, Russia, Schuko	
355235	Switzerland	
355236	USA, Canada, Mexico, Central America, Brazil, Japan	
355237	UK, Ireland, Malaysia, Middle East	
355238	Australia, New Zealand, Argentina, China	

Selecting a Syringe

Select the smallest syringe with a maximum volume that is greater than the largest volume to be dispensed. Ideally the smallest volume to be dispensed should fall within the optimal ranges listed to the left. The Microlab 700 can dispense volumes below the optimal range but there will be some impact on accuracy and precision. The SaltLine Syringes should be used when working with solutions that have a high salt concentration. Contact a Hamilton sales representative for additional assistance.

POWER CORD



POWER SUPPLY



Miscellaneous Accessories

Universal Valves & Accessories

Part Number	Valve Assembly Description
60676-01	Left Valve Assembly
60675-01	Right Valve Assembly
61498-01	Valve Cross Tube Assembly
61729-01	Valve Plug (1/pk)



LEFT VALVE



RIGHT VALVE



VALVE PLUGS



CROSS TUBE



FILL & DISPENSE TUBING

Dispense tubing has tapered end

FEP Tubing Assemblies

Part Number	Gauge	Type	Length	Internal Volume
10106145	18	Fill Tubing	48" (1219 mm)	0.96 mL
10106147	18	Dispense Tubing	54" (1372 mm)	1.08 mL
10106177*	18	Fill/Dispense Tubing	Custom Length	0.79 μ L/mm
10106148	12	Fill Tubing	48" (1219 mm)	3.83 mL
10106149	12	Dispense Tubing	54" (1372 mm)	4.31 mL
10106177*	12	Fill/Dispense Tubing	Custom Length	3.14 μ L/mm
61491-02	18	Continuous Fill Tubing		0.79 μ L/mm
61491-01	12	Continuous Fill Tubing		3.14 μ L/mm

* Specify gauge (12 red / 18 blue), length, and whether tapered or blunt end. Maximum length: 5 meters

Activation Key

Part Number	Upgrade Kit
10101502	ML700 Premium Activation Key

Other Accessories

Part Number	Description
88990	Tubing Clips (5/pk)
61710-01	Accessory Holder & Tubing Wire Stand
65160-01	Cable Management System



WIRE STAND



TUBING CLIPS



ACCESSORY HOLDER

Specifications

Controller Specifications

System Configuration	CPU NXP i.MX 6DualLite 800MHz
	ARM Cortex-A9 processor
	RAM: 1 GB DDR3, ROM: 8 GB
	GPU 3D Vivante GC880 35Mtri/s 266Mpxl/s Open GL ES 2.0
	OS: Android 5.1.1 / Linux Debian 8.0
Media	Video Decode 1080p30 + D1
	Video Encode 1080p30 H.264 BP / Dual 720p
Interface	Micro SD (TF) card slot, support up to 64G
	USB Device 2.0(OTG)x1, USB host 2.0x2
	IOIO1 (COM1 COM4 COM5)
	IOIO2 (COM2 RS422 RS485)
	LAN1 100M
	LAD2 200M, PoE for optional
	Earphone jack
	DC power input & output
Function	Wi-Fi 802.11a/b/g/n 2.4 GHz
Touch Panel	Capacitive
Display	7" LED backlit
	Screen Resolution: 1280 x 800
	Brighness: 400cd/m2
	Contrast: 800:1
	Viewing Angle: 140°/160° (H/V)
Power supply	DC 9-36V
Power Consumption	≤10W (Normal mode)
Temperature	Working: -20°C – 60°C
	Storage: -30°C – 70°C
Dimension	206 x 144 x 30.9 mm
Weight	790g

Single and Dual Syringe Pump Specifications

Accuracy	+/- 1%
Precision	+/- 0.2%
Syringe drive mechanism	1.8° stepper motor with variable volumetric flow rate
Flow rate	0.003–6000 µL/second (depending on the syringe that is selected)
Syringe resolution	0.002% of the nominal syringe volume
Compatible syringes	10, 25, 50, 100, 250, 500 µL, 1, 2.5, 5, 10, 25, and 50 mL BFP Syringes
Volume range	1.0 µL–50 mL
Fluid path	Borosilicate, PTFE, CTFE
Communication type	Ethernet, 10/100 BASE-T
Communication protocol	.NET 2.0 Application Programming Interface (API)
Pump memory	One method stored in non volatile memory
Calibration	Factory tested and traceable to N.I.S.T. standards
Certifications	CE
Power requirements	100–240 V 1.5 A max 50/60 Hz
Power rating	24 VDC, 2.5 A
Dimensions	7 x 5.5 x 10.5 inch (177.8 x 139.7 x 266.7 mm)
Weight	13 lbs (5.9 kg)



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

Hamilton 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.



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