

The Analytical Syringe with a Brain

Makes Everybody an Expert!



digiVOL[®]

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digiVOL® is a high performance, handheld digital analytical syringe designed for aliquoting aqueous, organic and volatile liquids from 0.1 μ L to 5mL at pressure, with exceptional accuracy and precision.

The digiVOL Brain



Smart Results

digiVOL provides expert accuracy and reproducibility every time. Build, validate, save methods so you can focus on the results.

Simple Operation

Use digiVOL's semi-automated capabilities to build and execute sequenced multi-step methods for sample preparation operations. Simply program, save, and run methods through an intuitive touch screen controller.

Extensive Capabilities

digiVOL is packed with features to extend laboratory operation. These include interchangeable syringes, user preference settings, Wi-Fi connection, automated software updates, and in-built routines for preparing calibration standards.

Calibration Standards

Automatically calculate calibration standard concentrations and dilutions to make a multi-point calibration curve using digiVOL's calibration standard module.

Applications at Pressure

digiVOL can operate at pressure, enabling it to be used for techniques such as microSPE, filtering, and membrane separations. This sets digiVOL apart and provides opportunity for integration of unique sample preparation protocols.



Boost productivity by automating sample preparation procedures



Eliminate human error and liquid handling skill variability



Validate methodologies more easily by improving the reproducibility of results

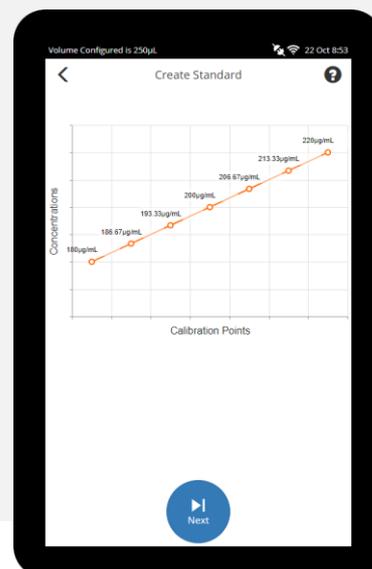


Reduce waste by allowing accurate use of smaller sample sizes and reagents

CALIBRATION STANDARDS MODULE

Automatically calculate and run multi-point calibration standards with digiVOL's calibration module. This feature is ideal for the preparation of chromatography and bioscience standards using small volumes.

- AI (artificial intelligence) prompts the user through the method to prevent mistakes
- Ideal for low-skilled Lab Assistants or Technicians
- Methods can be saved and locked - ensuring the validity
- Prepare using inhouse stock solutions or preconfigured Supplier Reference Standards and methods



Applications for digiVOL®

Routine Dispensing - Low Volume Liquids

Accurate and precise (no parallax error) dispensing of liquids down to 0.2µL with accuracies better than 0.4% RSD. Capable of multi-step programming and storage of methods.

Dispensing Volatile Organics

Dispense volatile organic liquids using gas tight analytical syringes directly into the output (cannot be achieved with air pipette systems). Suitable for hazardous and corrosive chemicals.

Sequenced Micro Reactions

Repeatable micro steps controlling volume and flowrate. Suitable for protein digest work. Methods can be stored, copied and shared.

Standards Addition

Accurate and precise small volumes of internal or surrogate standard(s) can be aliquoted into sample solutions before preparation.

Efficient Dilutions

Accuracy and precision means sample preparation can be performed with smaller volumes of reagent and chemicals.

Reaction/Kinetic Studies

Programmed volumes, flowrates, and timed pauses are useful for kinetic studies such as Trypsin digest through a µSPEed cartridge.

Derivatisation Reagent Addition

Ability to use sealed vials to limit laboratory staff exposure to potentially hazardous materials. Add solvent, sample, and derivatisation reagents at small volumes.

Direct to Mass Spec

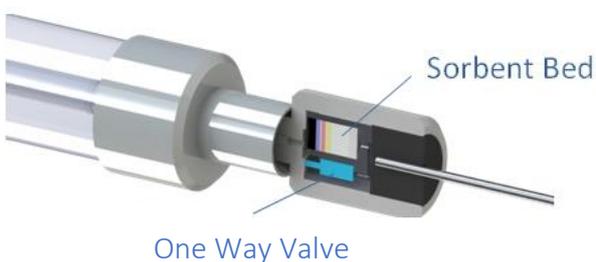
Prepare sample and directly inject sample at constant flowrate into an MS without an additional syringe pump. digiVOL can be manipulated to position for MS inlet when used with a stand.

Filtration

Use digiVOL's pressure capabilities with disk filters or perform micro membrane separations on Protein, DNA, and RNA.

Hand-held Automated Delivery Biotechnology

Suitable for applications such as: Cellular Injections, Research Drug Delivery Studies, Microinjections, and Cell Feeding.



digiVOL and µSPEed Cartridges high resolution microSPE

A unique key capability of digiVOL is its ability to drive solvents at pressure, enabling the use of high resolution µSPEed cartridges for microSPE, fractionation and separation. µSPEed's one-way valve gives elution in one direction and 3µm sorbent results in a clean, small volume, narrow band elution without solvent blow down.

digiVOL® Features



The digiVOL comes with a suite of features to enable accurate and adaptable use including:

- **Touch screen**, APP style software, which is simple to program, adjust and run
- Operation in **handheld or hands-free** stand mode with triggers for the Run, Start and Abort on both the Controller screen and handle
- **Chemical resistant** polymer handle and controller case
- **Syringe interchange** using the ePrep's simple XCHANGE® technology
- **High-performance plunger drive motor** capable of micron accurately positioning at pressure
- **Over Pressure Sensor** with intelligent automatic adjustment to operational parameters
- **Available syringes**; 2.4µL (plunger-in-needle), 50µL, 250µL, 1,25mL, 2.5mL and 5mL volumes

digiVOL® Operation

SELECT SYRINGE

ADD METHOD
STEPS

SET OPTIONS

SAVE METHOD

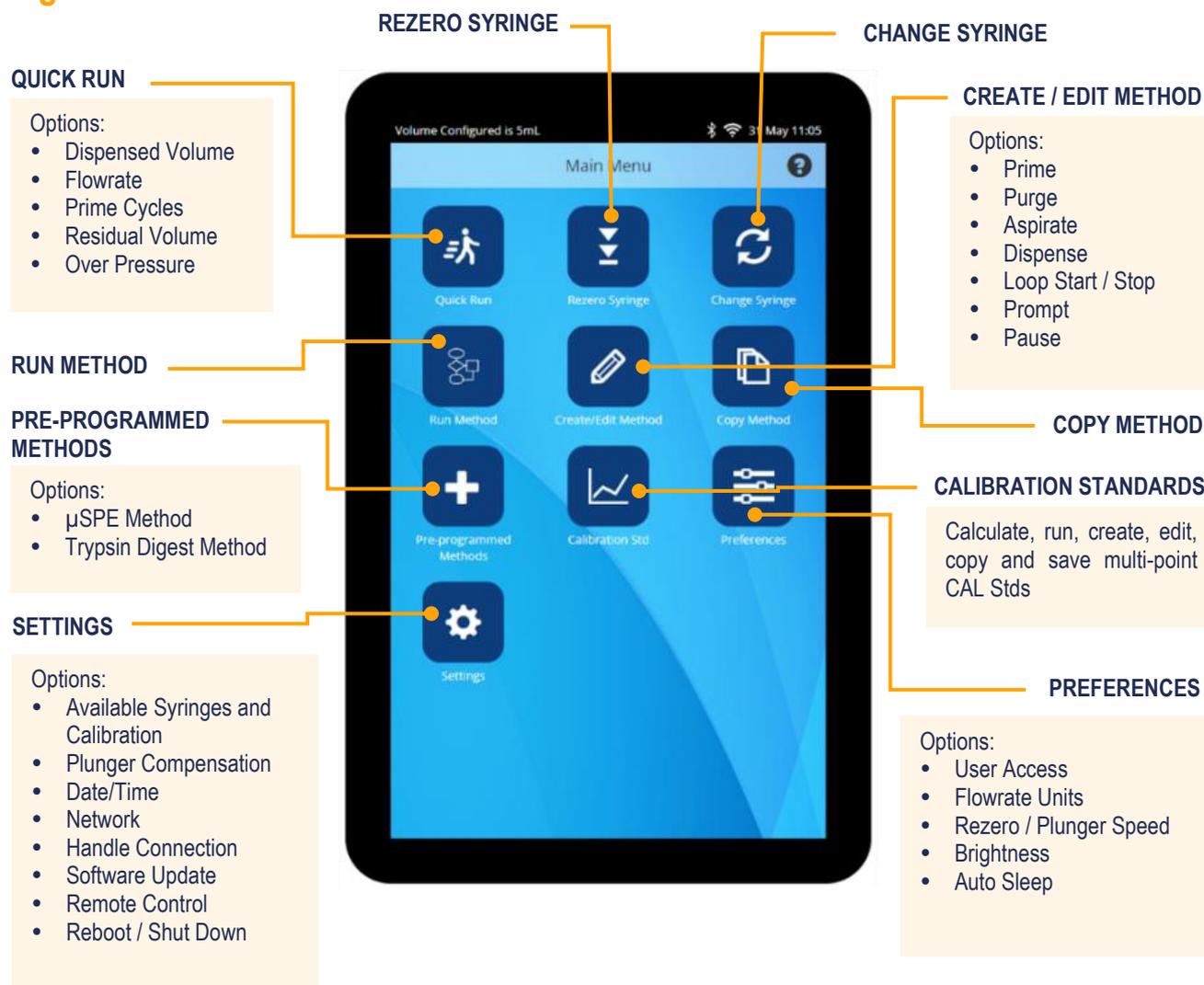
RUN METHOD

digiVOL Control

digiVOL APP software is comprehensive:

- Use the QUICK RUN function to **quickly create and execute a basic process** while preserving extreme precision and pressure made possible with digiVOL
- **Build, save, copy and run multistep methods** for the selected syringe volume using the touchscreen
- **Control and adjust parameters** with programmed variables for each step of the method including utilising μ SPE processes
- **Create calibration standards** using AI which automatically calculates calibration standard concentrations and dilutions to make a multi-point calibration curve and then executes the method
- **Calibrate the syringe** using comprehensive single and multiple point regression calibration options
- **User access privileges** to control Analyst vs Lab Assistant operation
- **Operational options** to change syringe, re-zero plunger, and basic preferences on the Settings or Preferences menu. Settings also include time and date, brightness, sleep settings, sound levels, Wi-Fi connection, and updating software
- **Wi-Fi** internet connectivity enables sharing of methods, data backup, automated software updates and feature additions

digiVOL Main Menu



digivol Specifications

LIQUID HANDLING AND SAMPLE PREPARATION

Liquid Handling Precision

Liquid: <1.0% RSD dispensed at 10% total syringe volume

Mechanical: < ±0.01mm plunger displacement precision.
(0.016µL for a 50µL syringe and 0.5µL for a 1.25mL syringe)

Liquid Handling Accuracy

Better than 1.0% of total syringe volume with an uncalibrated syringe

Syringes can be calibrated for greater accuracy

High Pressure

Depending on the syringe volume and type selected, the digivol is capable of operating at high pressures using positive liquid displacement.

Volume Range

Minimum volume: 0.1µL per dispense (for small volume syringe)

Maximum volume: 5mL per dispense

Flow Rates

0.12µL/min to 45mL/min depending on digivol motor and installed syringe

Plunger Stroke/Scale Length

30mm max plunger stroke

Plunger Pressure Force (theoretical)

Syringe pressure max: 2.4µL = 200psi, 50µL = >10000psi, 250µL = 4000psi, 1.25mL = 800psi, 2.5mL = 400psi. and 5mL = 200psi i. Max pressures are when motor will stall, stopping the plunger from moving. Note: these pressures may exceed the syringe burst pressure.

XCHANGE Syringes for digivol

2.4µL, 50µL, 250µL, 1.25mL 2.5mL and 5mL digivol syringes

OPERATIONAL INFORMATION

Function

Handheld or stand, high force digital syringe driver designed for liquid dispensing at the pressure

Environment

Syringes with a needle enable sealed vial operation. A well ventilated and climate-controlled environment is recommended. If using toxic materials, take appropriate safety precautions

Controller and Software

Powerful microprocessor controller with touch screen operating ePrep's digivol software (English only) and lifetime software updates (requires Wi-Fi connection)

Connectivity Controller-to-Tablet

Wireless communications between controller and handle

Wi-Fi capable controller for software update

Note: 24-volt power cable runs between the controller and handle for syringe motor operations

Online Updates

Controller software can be automatically updated by Wi-Fi, if connected

SYSTEM INFORMATION

Controller Dimensions (L x W x H)

200mm x 115mm x 75mm

Weight

Handle = 425 grams, Controller = 625 grams

Voltage

24V, 221W, 2.5A DC Power Pack; 100-240 Volt AC input; Requires country specific IEC C13 power cable (not supplied)

Operating Temperature

10 - 35°C, 0-80% relative humidity

Operating Sound Level

Typical 60dB

Compliance

CE, FCC, IC, RCM, RoHS, Safety EN 61010, EMC 61326

Warranty

12 months

digiVOL® Kit Contents

digiVOL Kit

- digiVOL Driver Handle
- digiVOL Controller Box
- 110/240-24volt handle Power Pack (mains C4 cable not supplied)
- 250µL digiVOL Syringe with eZy-Connect™
- 2 x eZy-Connect™ Hub Needles
- 1 x µSPEed C18RPS-3µm/120Å Cartridge
- 1 x µSPEed Silica-3µm/120Å Cartridge
- 1 x µSPEed PS-DVB-3µm/300Å Cartridge
- 1 x µSPEed PS-DVB-RP-3µm/300Å Cartridge

Optional

- digiVOL Flexi Stand (01-08150)

PRODUCT AND SPARES ORDERING INFORMATION

Part No	Description
digiVOL Analytical Syringe Driver Kits	
01-08105	digiVOL Digital Syringe Driver Kit without Stand
01-08115	digiVOL Digital Syringe Driver Kit with Stand
01-08210	digiVOL Calibration Standard Kit with Stand and 50µL, 250µL, 1.25mL, 2.5mL and 5mL syringes
Flexi Stand Only	
01-08150	Flexi Stand for digiVOL with Syringe Cradle
digiVOL Syringes	
01-09054	2.4µL digiVOL Syringe with 50mm Needle
01-09058	50µL digiVOL Syringe with eZy-Connect™
01-09061	250µL digiVOL Syringe with eZy-Connect™
01-09063	1.25mL digiVOL Syringe with eZy-Connect™
01-09064	2.5mL digiVOL Syringe with eZy-Connect™
01-09065	5mL digiVOL Syringe with eZy-Connect™
eZy-Connect Needles	
01-10990	eZy-Connect Needle - 0.64mm x 0.22mm (Pkt 10) for 50 and 250µL syringes
01-10992	eZy-Connect Needle - 0.64mm x 0.32mm (Pkt 10) for 1.25, 2.5 and 5mL syringes



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automation for every laboratory

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