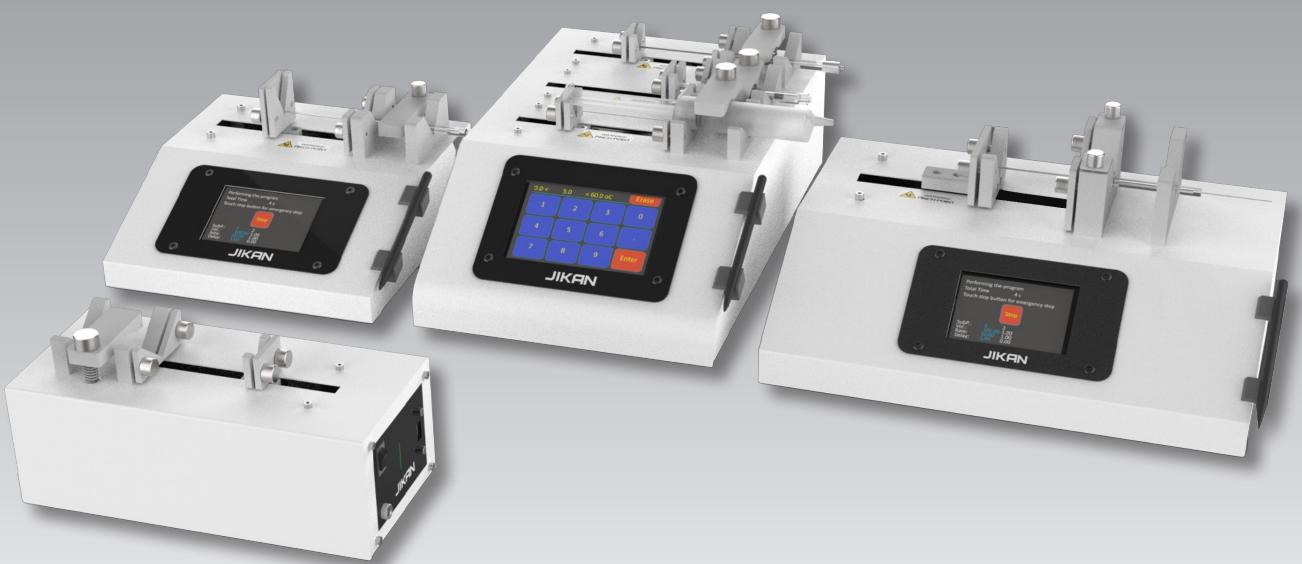


JIKAN

www.jikan-group.com

SPM Series

Syringe Pump Machines



High precision in injection/suction volume and rate • Totally noiseless, without vibrations • Great range of supported syringes, volumes and rates • Up to 25 kg.f linear force (in SPM-20 model) • Up to three independent channels (in SPM-10 TC) • Advanced software model can control up to 8 syringe pumps (in SPM-Lite model)

Jikan SPM-Lite

The Jikan SPM-Lite represents a significant advancement in syringe pump technology. It can be controlled via PC software developed by the Jikan group. The SPM-Lite features an innovative syringe holding system with a secure clamp compatible with syringes ranging from 0.5 μ l to 60 ml. This pump delivers superior performance, ensuring high accuracy and a smooth flow rate from 10 nl/s to 10 ml/s.

The SPM-Lite is highly versatile and can be interconnected using a USB interface, allowing up to 8 pumps to be linked together in a daisy chain configuration for maximum flexibility. Additionally, the compact design allows it to be placed on its side, reducing its footprint—ideal for limited laboratory spaces. Its performance is driven by a precise stepper motor and linear mechanism, complemented by a user-friendly syringe holder that ensures smooth flow. Advanced microstepping technology is used to minimize the step angle and eliminate flow pulsation.

All of the units can be changed through the software:

- Volume selection units: μ l, ml
- Delay time units: s, min, hr
- Flow rate units: μ l/s, μ l/min, μ l/hr, ml/s, ml/min, and ml/hr.

User Interface

The intuitive SPM-Lite can be controlled via PC software, allowing for quick and easy setup. The software enables users to set and modify parameters, as well as save and load configurations with ease. During operation, the software displays all the device's operating parameters on the screen.

Key operating parameters are clearly presented within the software interface. The device's memory includes a hard-coded database of well-known syringe brands, simplifying the input of syringe dimensions into the SPM-10. Notifications and error messages are displayed for user acknowledgment, eliminating any guesswork in troubleshooting. Additionally, the software has the capability to control up to 8 pumps simultaneously, offering enhanced flexibility in managing multiple devices.



1/8

1
Select the pump number and syringe type from the available options. You can also save and load programs.

2
Configure up to 9 subprograms by adjusting volume, flow rate, and delay time. Finally, select the START button.

3
You can see the progress of injection, including total time, elapsed time, and passed time.

The Jikan SPM-Lite supports simultaneous control of up to eight devices via the Jikan software.

Jikan SPM-10

Jikan SPM-10 is a leap forward in syringe pump technology. SPM-10 can be controlled by both intuitive touch screen interface as well as an optional PC software designed by Jikan group. SPM-10 employs advanced syringe holding mechanisms comprising a tight gripping, extremely secure syringe clamp that is compatible with 0.5 μ l to 60 ml syringes. SPM-10 offers enhanced performance providing high accuracy and smooth flow rate from 10 nl/s to 10 ml/s.

Jikan SPM-10 is versatile and can be connected to one another via the USB interface. These syringe pumps can be mixed and matched in a daisy chain offering maximum flexibility. Up to 4 pumps can be linked via the USB interface. For limited laboratory space, SPM-10 can be placed on its side to reduce the footprint by 55%. SPM's performance is optimized with an accurate stepper motor that drives a precise linear mechanism and a pusher block. The syringe holder mechanism is easy to use and securely holds the syringes to ensure the resulting flow smoothness. Advanced micro-stepping techniques are employed to further reduce the step angle to eliminate flow pulsation.

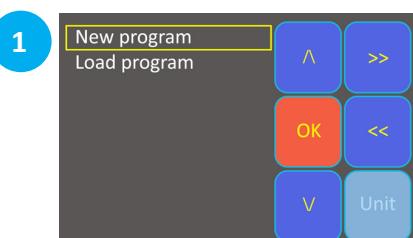
All of the Units can be changed through the UI:

- Volume selection units: μ l, ml
- Delay time units: s, min, hr
- Flow rate units: μ l/s, μ l/min, μ l/hr, ml/s, ml/min, and ml/hr.

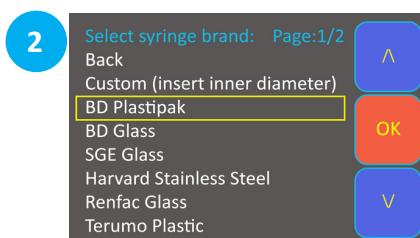
User Interface

The intuitive SPM-10 graphical user interface that can be controlled via a color LCD touchscreen display allows quick and easy setup. The fully touch-screen interface allows the user to set and modify the parameters and easily save and load these configurations. The LCD color display presents all the device's operating parameters on the screen while the operation is being performed.

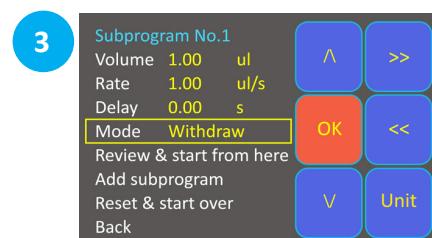
The key operating parameter are displayed on the user interface screen. The hard-coded database of well-known syringe brands in the device's memory makes it easier to define the utilized syringe's dimensions as an input for SPM-10. Notifications and error messages are displayed for the user to acknowledge in order to eliminate any guesswork about problems.



Create a new program or Load from a list of your past operations that you have saved previously.



After selecting the syringe type in the first page, the syringe volume should be selected from the available list of values. The user can also enter a custom diameter in case the desired volume cannot be found in the database.



Create your program by setting up the parameters based on the desired volume, rate, delay time¹, and mode².

¹ Delay time is probably used when you want to define multiple subprograms.

² Mode can be selected among Infuse and Withdraw.



SPM series benefits from a user friendly interface which is aimed at maximum user convenience.

Jikan SPM-20

The Jikan SPM-20 is a high-tech syringe pump designed for accurate liquid and gas injection for static pressures up to 15 bar. It is compatible with syringes ranging from 0.5 μ l to 60 ml and has an intuitive interface. The device is safe and reliable, making it ideal for consistent experiments. Additionally, it can be programmed via PC for customization and controlled use, making it a perfect tool for laboratory technicians and researchers.

The Jikan SPM-20 offers a robust and resistant body capable of delivering a linear force of 25 kg.f while maintaining low noise and vibrations. It ensures high precision in both injection and suction volume and rate, and it comes with a 10 ml steel syringe. The device also supports various syringe sizes, volumes, and flow rates, providing versatility for different applications. Additionally, the customizable software allows for tailored operation, and the built-in memory enables users to save programs for future use. For labs with limited space, the SPM-20 can be positioned on its side, reducing its footprint notably. Additionally, advanced microstepping technology is used to minimize step angles and eliminate flow pulsation.

All of the Units can be changed through the UI:

- Volume selection units: μ l, ml
- Delay time units: s, min, hr
- Flow rate units: μ l/s, μ l/min, μ l/hr, ml/s, ml/min, and ml/hr.

User Interface

The SPM-20 features an intuitive graphical user interface accessible through a color LCD touchscreen, enabling quick and easy setup. This fully touch-operated interface allows users to set and adjust parameters, as well as effortlessly save and load configurations. During operation, the color LCD display shows all the device's operating parameters on the screen.

Key operating parameters are shown on the user interface screen. The device's memory includes a hard-coded database of well-known syringe brands, simplifying the input of syringe dimensions into the SPM-20. Notifications and error messages are displayed for user acknowledgment, eliminating any guesswork in troubleshooting.

1 Create a new program or Load from a list of your past operations that you have saved previously.

2 After selecting the syringe type in the first page, the syringe volume should be selected from the available list of values. The user can also enter a custom diameter in case the desired volume cannot be found in the database.

3 Create your program by setting up the parameters based on the desired volume, rate, delay time¹, and mode².

¹ Delay time is probably used when you want to define multiple subprograms.

² Mode can be selected among Infuse and Withdraw.



The SPM series features a user-friendly interface designed for maximum convenience. It also includes a highly durable 10 ml steel syringe.

Jikan SPM-10 TC

The Jikan SPM-10 TC is a highly advanced and cutting-edge scientific instrument that expertly manages multiple syringe channels simultaneously. This sophisticated device allows the selection of up to three completely independent dispensing channels. It offers an intuitive user interface with a large, vibrantly colored touch screen, that simplifies the syringe pump control process to a remarkable degree. It is compatible with syringes ranging from 0.5 μ l to 60 ml and has an intuitive interface. SPM-10 offers enhanced performance providing high accuracy and smooth flow rate from 10 nl/s to 10 ml/s. SPM-10 TC can be controlled by both intuitive touch screen interface as well as an optional PC software designed by Jikan group.

SPM's performance is enhanced by a precise stepper motor that operates a linear mechanism and pusher block with high accuracy. The syringe holder mechanism is user-friendly and securely fastens the syringes, ensuring smooth and consistent flow. To minimize flow pulsation, advanced microstepping techniques are used to further reduce the step angle. All

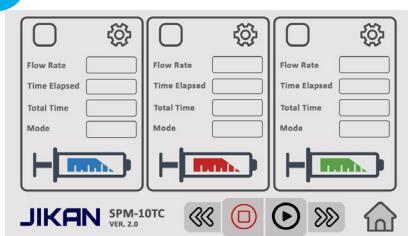
of the Units can be changed through the UI:

- Volume selection units: μ l, ml
- Delay time units: s, min, hr
- Flow rate units: μ l/s, μ l/min, μ l/hr, ml/s, ml/min, and ml/hr.

User Interface

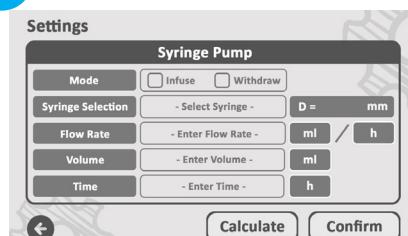
The SPM-10 TC features an intuitive graphical user interface that can be easily controlled via a 7-inch full-color touchscreen LCD display, enabling quick and straightforward setup. This fully touchscreen interface allows users to set, modify, save, and load configurations with ease. During operation, the LCD color display shows all the device's operating parameters on the screen. The key operating parameters are prominently displayed on the user interface, and a hard-coded database of well-known syringe brands stored in the device's memory simplifies the process of defining the syringe dimensions for use with the SPM-10 TC. Additionally, notifications and error messages are clearly displayed to inform the user and prevent any uncertainty about potential issues.

1



Create a new program or Load from a list of your past operations that you have saved previously.

2



After selecting the syringe type in the first page, the syringe volume should be selected from the available list of values. The user can also enter a custom diameter in case the desired volume cannot be found in the database.

3



Create your program by setting up the parameters based on the desired volume, rate, delay time¹, and mode².

¹ Delay time is probably used when you want to define multiple subprograms.

² Mode can be selected among Infuse and Withdraw.



The SPM series features a user-friendly interface designed for maximum convenience. SPM-10 TC comes with a 7-inch full-color touchscreen LCD display

Advanced Connectivity

The Jikan SPM series are equipped with a USB port, allowing seamless data transfer between the device and a PC. Optional connectors are also available for integrating add-ons and accessories. Additionally, the SPM-Lite can be programmed and controlled via

PC software through the USB port, enabling simultaneous control of up to eight devices. This software supports the management of up to four SPM-10 devices, four SPM-20 devices, and one SPM-10 TC.

1

Syringe Compatibility

Compatible with Syringe Sizes Up to 60 ml.

2

Continuous Operation

Uninterrupted and Consistent Performance Until Manual Stop.

3

Quick Access Settings

Easily Load Previously Saved Operation Settings.

4

On-Screen Reporting

Real-Time Display of Total Time, Rate, and Volume for Each Subprogram.

5

Flexible Programming

Supports Single-Stage to Multi-Stage Infusions and Withdrawals.



Ease of Use

You can place your syringe on the machine and securely fasten it by tightening four screws, which prevent any axial looseness, ensuring the syringe stays firmly in place. Next, tighten the vertical screw to lock the syringe against any potential movement, providing additional stability. Once the syringe is securely mounted, you can set up your desired program in less than 30 seconds using the intuitive interface.



After configuring the program to your specifications, simply press the start button to initiate the operation. You can also save the program for future use, allowing for quick and efficient setups in subsequent operations. This process ensures both precision and ease of use, making it ideal for repeated or complex procedures.

6 Advanced Programmable Phases

Up to 90 Pumping Phases with Customizable Rates, Volumes, Delays, and Add-Ons.

7 Sequential Subprograms

Seamless Execution of Infusions and Suctions Without Interruption.

8 Durable Construction

Steel Body with Anodized Aluminum Clamps.

9 Extended Infusion Capability

Maximum 3-Hour Infusion Duration, PC Software Required for Slower Rates.

10 API Integration

Robust Python and C++ APIs for Multi-Device Control and Synchronization.

Technical Specifications

Specification	SPM Lite	SMP-10	SPM-20	SPM-10 TC
Maximum Injection/Suction Rate Accuracy	10 ml/s $\pm 0.1\%$	10 ml/s $\pm 0.1\%$	10 ml/s $\pm 0.1\%$	10 ml/s $\pm 0.1\%$
Minimum Injection/Suction Rate Accuracy	10 nl/s $\pm 0.1\%$	10 nl/s $\pm 0.1\%$	10 nl/s $\pm 0.1\%$	10 nl/s $\pm 0.1\%$
Minimum/Maximum Syringe Size	0.5 μ l to 50 ml	0.5 μ l to 60 ml	0.5 μ l to 60 ml	0.5 μ l to 60 ml
Maximum Travel Distance	100 mm	100 mm	100 mm	100 mm
Number of Channels	1	1	1	3
Linear force	3.18 kg	3.18 kg	25 kg	3.18 kg
Built-in Software Features	NaN	9 Cycles 10 Saving Slots Adjustable Injection/ Suction Rate Automatic Ranges	9 Cycles 10 Saving Slots Adjustable Injection/ Suction Rate Automatic Ranges	9 Cycles 10 Saving Slots Adjustable Injection/ Suction Rate Automatic Ranges
Power	12V 2.5A	12V 2.5A	12V 2.5A	12V 5A
Dimensions	Width: 100 mm Height: 80 mm Depth: 230 mm	Width: 260 mm Height: 120 mm Depth: 200 mm	Width: 350 mm Height: 150 mm Depth: 200 mm	Width: 385 mm Height: 250 mm Depth: 130 mm
PC Software	Windows software for controlling up to 8 pumps	Windows software for controlling up to 8 pumps (Optional)	Windows software for controlling up to 8 pumps (Optional)	Windows software for controlling up to 3 channels(Optional)
Weight	2.5 Kg	5 Kg	5 Kg	5.2 Kg



Accessories

Our syringe pumps are designed to offer precision, versatility, and ease of use. To further elevate their performance and adaptability, we offer a selection of

premium accessories tailored to meet your specific needs.

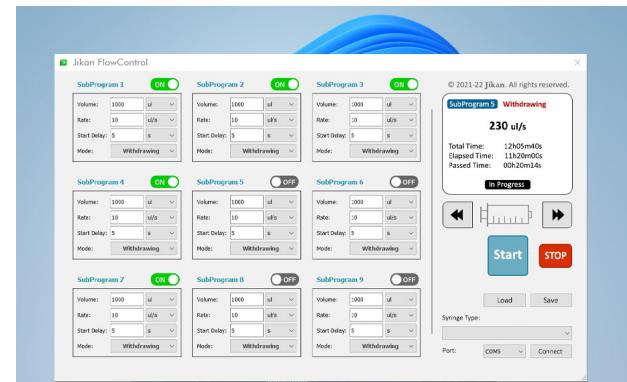
1 Flow Switch valves



2 USB Hub for Linking Multiple Syringe Pumps



4 Customizable PC software



5 Python and C++ APIs

JIKAN
www.jikangroup.com

Contact us

info@jikangroup.com

Hall No. 7, Stadium Square, University of Tehran,
North Campus, North Kargar Street, Tehran, Iran.

phone: +98 21 88220801
website: www.jikangroup.com

