WORLD PRECISION INSTRUMENTS

Nanoliter 2020 Injector

Quick Start Guide

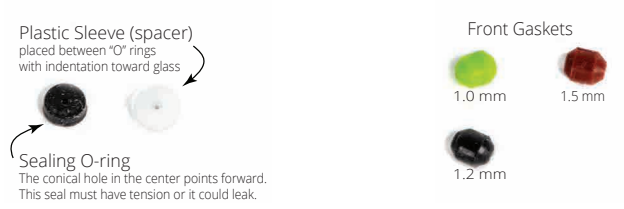
04/19/2021

Setup

The NANOLITER2020 Injector Head by default is configured with a green front gasket and two o-rings. Follow steps 1 and 2 to replace the gaskets.

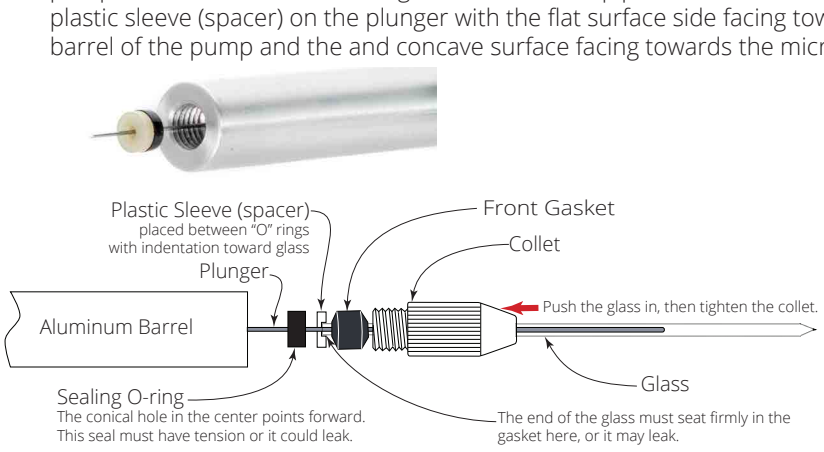
1. **Select the appropriate o-rings** – The Sealing O-ring and the Plastic Sleeve (spacer) are always used. The o-ring used depends on the outer diameter of your glass micropipette.

Front Gasket Color	Green	Black	Red
Pipette Diameter (mm)	1.1-1.15	1.3-1.35	1.5



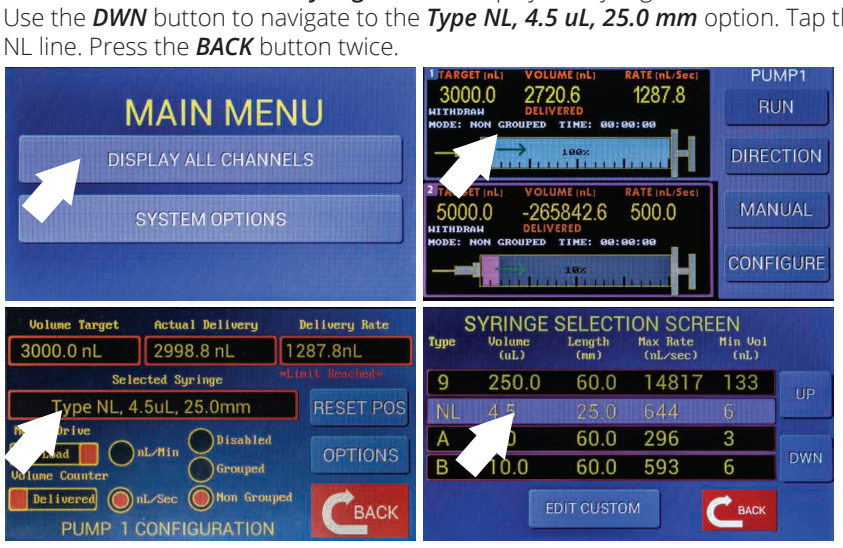
NOTE: TIP10XV119 (1.14 mm OD micropipette) or 504949 (1.14 mm OD glass capillary) is recommended for use with the Green Front Gasket. TIP10XV119 and 504949 are included with the NANOLITER2020 system. Fire-polished glass needs to be used for any Front Gasket.

2. **Install the o-rings on the plunger** – First, slide the sealing o-ring (black disc shape gasket) on the plunger with the large hole facing towards the barrel of the pump and the smaller hole facing toward the micropipette. Then, slide the white plastic sleeve (spacer) on the plunger with the flat surface side facing towards the barrel of the pump and the and concave surface facing towards the micropipette.

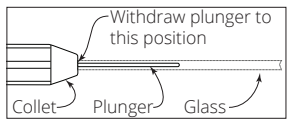


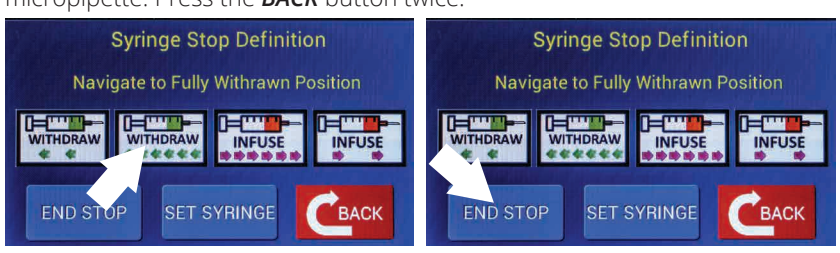
3. Connect the AC power supply unit to power port on the rear panel of the MICRO2T controller. Plug the AC power cord into a wall outlet. Press the power button on the rear panel of the SMARTouch™ controller to power on the unit.
4. Connect the Nanoliter cable to OUTPUT 1 on the rear panel of the SMARTouch™ controller. Make sure the marked arrow on the connector is facing upwards for proper pin alignment.

5. **Select the NL syringe type** – Touch the splash screen to access the main menu. Select the DISPLAY ALL CHANNELS option. Tap the top half of the display that has the first syringe settings to select the connected pump. Press the ***CONFIGURE*** button. Touch the ***Selected Syringe*** field to display the Syringe Selection Screen. Use the ***DWN*** button to navigate to the ***Type NL, 4.5 uL, 25.0 mm*** option. Tap the NL line. Press the ***BACK*** button twice.

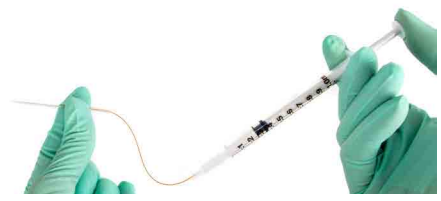


6. **Configure the plunger position** – Press the ***CONFIGURE*** button to open the Configuration screen. Press the ***RESET POS*** button to enter the Syringe Stop Definition screen. Press the ***WITHDRAW*** or ***INFUSE*** button to set the position of the plunger at the base of the **Nanoliter 2020** collet. When you press the ***WITHDRAW*** or ***INFUSE*** button, you should feel (and hear) the pump motor engage. Let the plunger com out 1-2 mm from the collet opening and press the ***END STOP*** button to define the initial position of the plunger inside the micropipette. Press the ***BACK*** button twice.





7. **Back fill the micropipette** – Using a 34G MicroFil, back fill the entire length of a glass micropipette with mineral oil. Be careful to prevent bubbles. Wipe any excess oil with a Kim wipe.



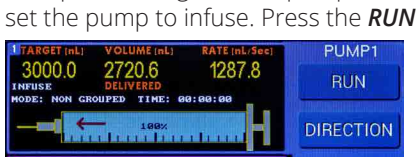
8. **Install a back filled micropipette on to the Nanoliter2020 injector** – First unscrew the collet. Slide the blunt end of the micropipette through the tip of the collet. Then, push the blunt end of the micropipette through the appropriate o-ring. Line up the wire plunger with the micropette and slide the micropipette over the plunger. As you push the micropette in, feel it go through the large o-ring and seat in the white spacer. The glass end must be firmly seated in the plastic sleeve (spacer), or it could leak. It is absolutely essential that these components be properly assembled.

NOTE: First, the white spacer has one flat side and one side with a concave surface. This concave surface receives the back end of the pipette and protects the plunger sealing o-ring from damage. Second, the black sealing o-ring has a small hole on one side and a larger hole on the other. The larger hole must be positioned facing the injector.

Once positioned, tighten the collet securely. Pull on the micropipette (with your fingers) to verify that it is securely seated.

Micropette does not come out when you pull gently.

9. **Load the micropipette** – Press the ***CONFIGURATION*** button to access the Configuration screen. Set the ***Volume Target*** and the ***Delivery Rate*** by touching each field and entering the desired value. Press the ***BACK*** button. The image of the micropipette on the controller screen should have a red arrow pointing towards the tip, indicating that the pump is infusing. If not, press the ***DIRECTION*** button to set the pump to infuse. Press the ***RUN*** button to eject a volume of oil.



Next place the micropipette tip into the fluid to be loaded. Make sure the tip is immersed in the liquid, or gas bubbles will collect in the sample. Press the ***DIRECTION*** button to set the pump to withdraw. The image of the micropipette on the controller screen should have a green arrow pointing away from the tip. Press the ***RUN*** button. This will draw fluid (front fill) into the micropipette.

Press the ***DIRECTION*** button to set the pump to infuse. Now the micropipette can be placed at the desired injection location and after setting the desired injection volume, make an injection by pressing the ***RUN*** button.

Replacing the Gaskets

To change the gaskets, unscrew the collet and slide the collet assembly off of the wire plunger. Unscrew the aluminum barrel from the Nanoliter injector. The o-ring should slide easily from the collet.

When you slide the barrel over the plunger without the collet assembly, the sealing o-ring (black) and the plastic sleeve (white) should come off. If not, use a small pair of curved forceps to scoop them out of the end of the barrel. To reassemble the unit, slide the barrel over the wire plunger and screw it in place on the injector. DO NOT bend the plunger. Position the Sealing O-ring and the Plastic Sleeve as described above. Following the instructions in step 8 above, install the appropriate o-ring on a fresh micropipette and screw the collet in place.

Power/Run Indicator

When the Nanoliter 2020 is connected to the MICRO2T controller, a dim red light illuminates. The light turns bright red when the ***RUN*** button is pressed and the Nanoliter 2020 pump is running.

Off - Unit is unplugged. Dim - Unit has power. Bright - Unit is running.

USA: www.wpiinc.com • (866) 606-1974 • wpi@wpiinc.com

UK: www.wpi-europe.com • 44 (0)1462 424700 • wpiuk@wpi-europe.com
Germany: +49 (0)6031 1602171 • wpide@wpi-europe.com
China & Hong Kong: www.wpiinc.net • +86 688 85517 • ChinaSales@china.wpiinc.com