

# Syringe Pump (NE-300)

## Brief user manual

**INSTRUMENT SAFETY GUIDELINES** - The Syringe pump is designed and only to be executed in accordance with this manual and company SOP. Failure to observe the following precautions could result in instrument failure and personal injuries:

- ❖ The syringe pump is electrically powered. To avoid electric shock, please observe all standard precautions and general safety guidelines for electronic instruments.
- ❖ Disconnect power from the pump when connecting or disconnecting cables.
- ❖ Keep hands and loose clothing away from the pump's moving parts.
- ❖ Prevent liquids from entering openings in the rear of the pump.
- ❖ Always take care while handling the syringe with the needle.
- ❖ If any solvents/ solutions are spilled on the surface of the pump, wipe it immediately.

**In an emergency:** If a problem is encountered, turn OFF the power switch according to the following procedure.

- ❖ Press the power switch, located on the lower section on the right side of the instrument, to the "O" position.
- ❖ Remove the power cord from the lower section on the right side of the instrument

### **Operation:-**

1. **Plug in** the pump.
2. Press the **power switch** to turn the power on.
3. Press **any key** to stop the display from blinking.
4. Setup Pumping Parameters

4.1 To **Change Numbers:**

- Use the **up-arrow keys** to increment individual digits.
- To set/clear the decimal point: Simultaneously **press the 2 up-arrow keys** under the 2 digits next to the decimal point position. Alternatively, press and hold the left-most up-arrow key for at least 1 second. When the digit increments from 9 to 0, the decimal point will begin to shift. Release the key when the decimal point is correct.
- Press **any non-arrow key, or wait 2 seconds**, to enter the new setting. The display will blink when a new value is entered and stored in memory.

#### 4.2 Set the Syringe Inside Diameter:

- Momentarily press the **‘Diameter’** key. Set the inside diameter of the syringe in millimeters (mm).

#### 4.3 Set the Pumping Rate.

- Momentarily press the **‘Rate’** key.
- To change the pumping rate units:
  - Momentarily press the ‘Rate’ key again. The display will show: **Unt5**
  - Press **any up-arrow key** to select the next available rate units while the units LEDs are blinking.
  - Press any **non-arrow key, or wait 2 seconds**, to set the rate units.
- Set the pumping rate. If the pumping rate is out of range, the display will show: **or:0 |**

#### 4.5 Set the Volume to be Dispensed or Continuous Pumping

- Momentarily press the **‘Volume’** key.
- When the display shows **OFF**, the pump is set for continuous pumping. Pressing **any up-arrow key** will change the display to 0.
- For continuous pumping: Set the **volume to 0**.
- For a Volume to be Dispensed: **Set the volume**. The default units are set according to the syringe diameter.

#### 4.6 Set the Pumping Direction

- When the '**Withdraw**' LED is lit, the pump is set for withdrawing. When not lit, the pump is set for infusing. Use the  $\rightarrow\leftarrow$  key to change the pumping direction.
5. Load the Syringe
    - Press in the **white drive-nut button** to move the pusher block.
    - Insert the syringe plunger in the **pusher block slot**.
    - Insert the syringe **barrel flange in the flange brackets** with the syringe barrel holder on the syringe. Tighten the flange brackets onto the syringe flange. Tighten the pusher block screw.
  6. Prime / Purge: Press and hold the '**Start/Stop**' key for one second. Release to stop.
  7. Start the Pump: Press and release the '**Start/Stop**' key to start or stop the pump.
  8. When Pumping
    - The pumping rate can be changed.
    - With continuous pumping, the pumping direction can be changed.
  9. **PUMP RESET**: Press and hold **the right-most up-arrow key** while turning on power to the pump.

### **Tips/ Notes:**

1. The NE-300 does not have stall detection. The pump must be stopped manually when the syringe is empty or if the motor force is exceeded. The white drive nut block can be damaged when the pump is operating while the motor cannot turn.
2. A minimum pumping rate of 0.73 ul/hr with a B-D 1 ml syringe and a maximum pumping rate of 1257 uL/hr with a B-D 60mL syringe.
3. To change the pumping rate, display the pumping rate, and then use the up-arrow keys. The rate units will blink while the rate is being changed. Rate units cannot be changed while pumping.
4. The inner diameter of the syringe (diameter of the outer part where liquid comes out) should be entered while entering the diameter of the syringe.
5. Periodically, a small amount of all-purpose oil should be applied to the guide rods and lead screw.
6. The mechanism should be kept clean to prevent impeded operation. No other special maintenance or calibrations are needed.