

# ValveMate 8000 Controller

## Operating Manual



Electronic pdf files of Nordson EFD manuals are also available at [www.nordsonefd.com](http://www.nordsonefd.com)



You have selected a reliable, high-quality dispensing system from Nordson EFD, the world leader in fluid dispensing. The ValveMate™ 8000 controller was designed specifically for industrial dispensing and will provide you with years of trouble-free, productive service.

This manual will help you maximize the usefulness of your ValveMate 8000 controller.

Please spend a few minutes to become familiar with the controls and features. Follow our recommended testing procedures. Review the helpful information we have included, which is based on more than 50 years of industrial dispensing experience.

Most questions you will have are answered in this manual. However, if you need assistance, please do not hesitate to contact EFD or your authorized EFD distributor. Detailed contact information is provided on the last page of this document.

## The Nordson EFD Pledge

Thank You!

You have just purchased the world's finest precision dispensing equipment.

I want you to know that all of us at Nordson EFD value your business and will do everything in our power to make you a satisfied customer.

If at any time you are not fully satisfied with our equipment or the support provided by your Nordson EFD Product Application Specialist, please contact me personally at 800.556.3484 (US), 401.431.7000 (outside US), or [Srini.Subramanian@nordsonefd.com](mailto:Srini.Subramanian@nordsonefd.com).

I guarantee that we will resolve any problems to your satisfaction.

Thanks again for choosing Nordson EFD.

*Srini Subramanian*  
Srini Subramanian, General Manager

## Contents

Contents.....	3
Introduction .....	4
Safety .....	4
Preventative Maintenance .....	4
Specifications.....	5
Front Panel Buttons.....	6
Indicator Lamps .....	7
Modes of Operation .....	7
Typical Setup — Two Valve System Installation .....	9
Mounting the ValveMate 8000.....	10
Input/Output Connections.....	11
Initiate Connection .....	12
Initiate Connection Schematic .....	14
Installing the Air Solenoids .....	15
Final Setup Checklist.....	16
Testing the Dispense Valves .....	17
Troubleshooting Guide .....	18
Replacement Parts List .....	19



flumma  
fluid management

## Introduction

**IMPORTANT:** The primary control of deposit size is the valve open time. The ValveMate 8000 provides easy access and “on the fly” adjustment of valve open time.

The ValveMate 8000 is an EFD dispense valve controller, incorporating programmable dispense time, digital time readout, four independent solenoid drivers and input/output communication with host machine PLCs.

Other features include:

- Push-button time setting input or onetouch time programming.
- Floating decimal, providing dispense time ranges of 0.001 to 99.9 seconds.
- Bright red LED display.
- Push-button purge feature.
- Low air-pressure, optional tank low level detection, or other alarm detection devices.
- End-of-Cycle feedback signal.

The ValveMate 8000 has been designed with the machine builder and operator in mind. The objectives are to bring dispensing control close to the point of application, and to provide the features necessary to make setup and operation as easy and precise as possible. The ValveMate is easy to operate. Once you have reviewed the features, you will understand the benefits and the ease of control the ValveMate provides.

As with all EFD products, the ValveMate has been produced to exacting specifications and thoroughly tested prior to shipment.

To obtain maximum performance from this equipment, please read the instructions carefully.

## Safety

Please read the EFD product safety statement included in the package. Follow all appropriate safety instructions.

## Preventative Maintenance

As part of maintaining continuous trouble-free use of this product, EFD recommends a few very simple preventative maintenance checks.

1. Periodically inspect tube to fitting connections for proper fit. Secure as necessary.
2. Check tubing for cracks and contamination. Replace tubing as necessary.
3. Check all wiring connections for looseness. Tighten as necessary.
4. If front panel requires cleaning, use a clean, soft damp rag with a mild detergent cleaner. **DO NOT USE** strong solvents (acetone, MEK, etc.) as they will damage the front panel material.

## Specifications

**NOTE:** Specifications and technical details are subject to engineering changes without prior notification.

<b>Cabinet size:</b>	18.3W x 8.5D x 5H cm (7.22W x 3.38D x 2H")
<b>Weight:</b>	0.27 kg (0.6 lb)
<b>Input AC (to power supply):</b>	100–240 VAC (+/-10%) ~, 50/60Hz, 1.0 Amp
<b>Output voltage (from power supply):</b>	24 VDC — 1.25 Amp maximum
<b>Power requirements:</b>	24 VDC — 1.25 Amp maximum
<b>Feedback circuits:</b>	5 to 24 VDC — NC solid-state switch, 100 mA maximum
<b>Initiate circuit:</b>	5 to 24 VDC signal
<b>Cycle rate:</b>	Exceeds 600 per minute
<b>Time range:</b>	Programmable 0.001 to 99.9 seconds
<b>Ambient operating conditions:</b>	Temperature: 5° C to 45° C (41° F to 113° F) Humidity: 5 to 95% Height above sea level: 2,000 meters max (6,562 feet) This equipment is for indoor use only.
<b>Product Classification:</b>	Installation Category I Pollution Degree 2

Meets or exceeds CE and CSA requirements

### RoHS标准相关声明 (China RoHS Hazardous Material Declaration)

产品名称 Part Name	有害物质及元素 Toxic or Hazardous Substances and Elements					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr6)	多溴联苯 Polybrominated Biphenyls (PBB)	多溴联苯醚 Polybrominated Diphenyl Ethers (PBDE)
外部接口 External Electrical Connectors	<b>X</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<p><b>0:</b> 表示该产品所含有的危险成分或有害物质含量依照EIP-A, EIP-B, EIP-C的标准低于SJ/T11363-2006 限定要求。 Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is below the limit requirement in SJ/T11363-2006.</p> <p><b>X:</b> 表示该产品所含有的危险成分或有害物质含量依照EIP-A, EIP-B, EIP-C的标准高于SJ/T11363-2006 限定要求。 Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is above the limit requirement in SJ/T11363-2006.</p>						

## Front Panel Buttons

**SEL** — Pressing the SEL  button scrolls sequentially through the four channel time settings appropriate to the MODE  selection. Time in seconds is displayed on the three digit LED display.

**MODE** — Pressing the MODE  button scrolls through the menu at the left of the LED. Also used for clearing ALARM faults.

 **RUN** — Enables external initiate inputs. The cycle button is disabled.

 **SETUP** — Setup / testing and modification of 4-channel TIMER modes.

 **PURGE** — Enables individual or simultaneous purge of dispense valves.

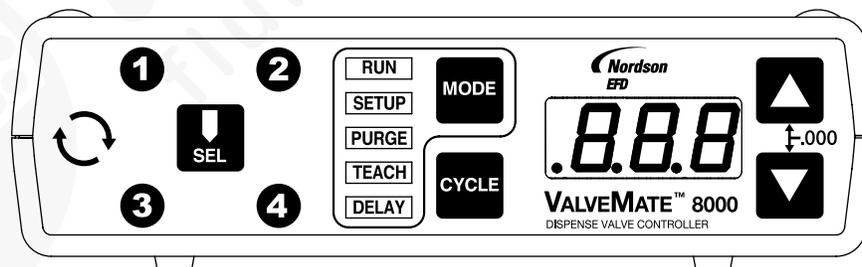
 **TEACH** — For easy setting / teaching of time modes in filling or other longer cycle applications.

 **DELAY** — Allows user entry of pre-dispense time between individual channels.

**CYCLE** — Pressing the CYCLE  button will provide different results according to the selected MODE.

**TIME SET** — Pressing the UP  or DOWN  buttons will change valve-on time for the selected valve(s) or the DELAY time. Pressing both buttons simultaneously will zero out the time. These buttons are enabled in the RUN,  SETUP , and DELAY  modes only.

**ALARM INDICATORS** — At the beginning of any of the dispense activities, if the ALARM circuit is open, “ALr”  flashes on the LED display. ALARM condition needs to be corrected — either low pressure, low level, or other alarm open circuit. After the circuit is restored, the flashing “ALr”  becomes steady. Press MODE  button to resume normal operation.



# Indicator Lamps

The indicator lamp  at the far left will be lit any time valves are actuated.

The four numbered lamps, ①, ②, ③, and ④, around the SEL  button will be lit sequentially then all ON by pressing the SEL  button.

In the center of the front panel are five indicator lamps:     . These lamps indicate the mode of operation.

# Modes of Operation

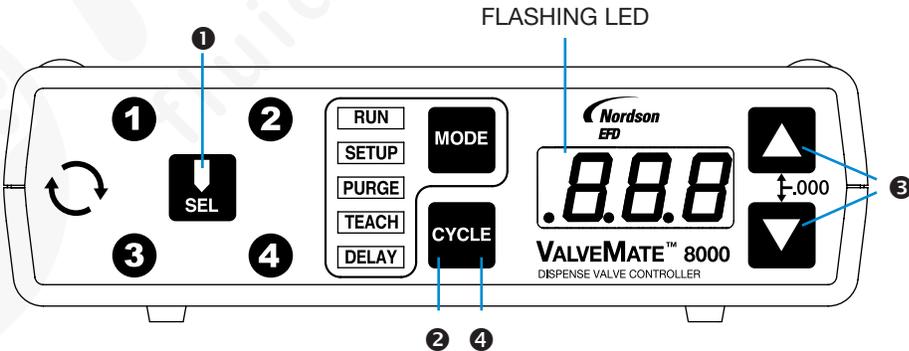
 **RUN** — The ValveMate 8000 is ready to be initiated through the I/O resulting in a dispense cycle. Time settings can be made “on the fly” while the machine is running. For “on the fly” adjustment, ① select  appropriate channel. ② Press CYCLE . LED display will “flash.”

③ Press UP  or DOWN  arrow to add or subtract time to selected channel. ④ When finished, press CYCLE to lock in new TIME. Initiate signals are only enabled in the RUN mode.

**SETUP** — In the SETUP mode, time settings can be changed and deposit size tested.

 **PURGE** — This allows purging from selected  or all channels for the duration the CYCLE  button is pressed.

 **TEACH** — Select channel. Pressing and holding the CYCLE  button in the TEACH  mode will begin “flashing” of the LED display for 5 seconds before TEACH function begins. Add incremental time to selected channel by continued press and hold of CYCLE  button, or “.000” out channel time and begin TEACH  sequence described above. Repeat sequence for each channel.

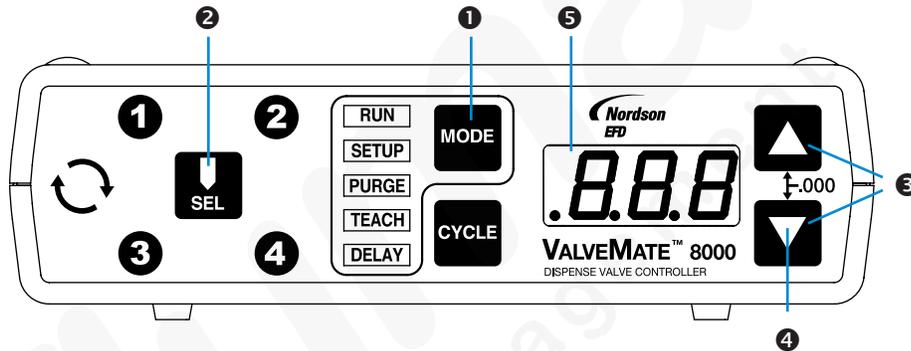


## Modes of Operation (continued)

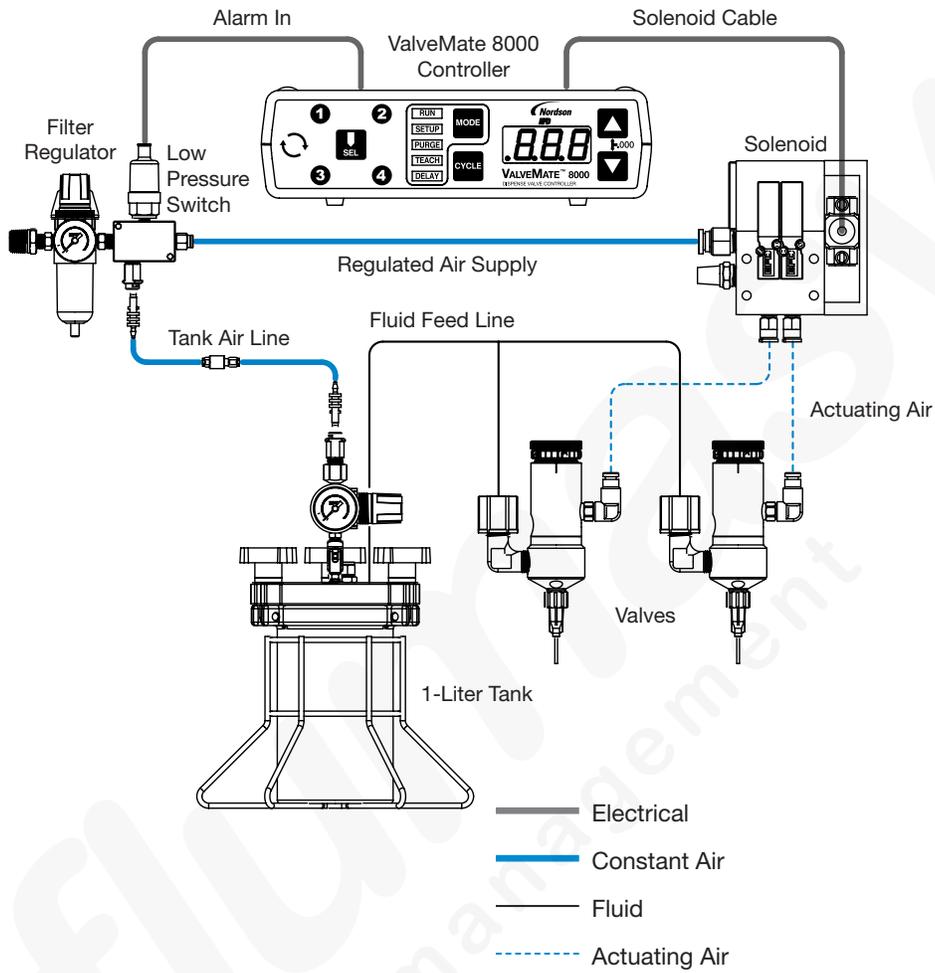
**DELAY DELAY** — In the delay **DELAY** mode, the time set buttons can be used to enter a pre-dispense delay for adjusting the leading edge of the valve open time.

### Steady Mode Operation

Each individual channel can be put into a steady mode / time override operation. ① In Setup mode **SETUP**, ② press SEL **SEL** for selected channel. ③ Press both UP / DOWN **▲▼** buttons to “.000” out channel time. ④ Press and hold DOWN **▼** button for 5 seconds or until ⑤ “— — —” appears on LED display. Repeat steps for each channel requiring steady mode. To return to TIME setting, enter **SETUP** **SETUP** mode. Select **SEL** appropriate channel. Press UP / DOWN **▲▼** buttons simultaneously. “.000” will appear on LED display. Re-enter time value as needed.

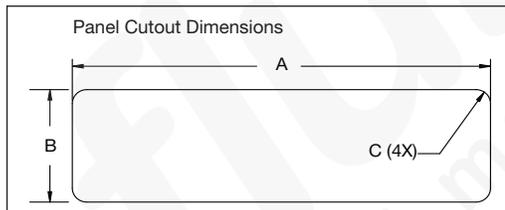
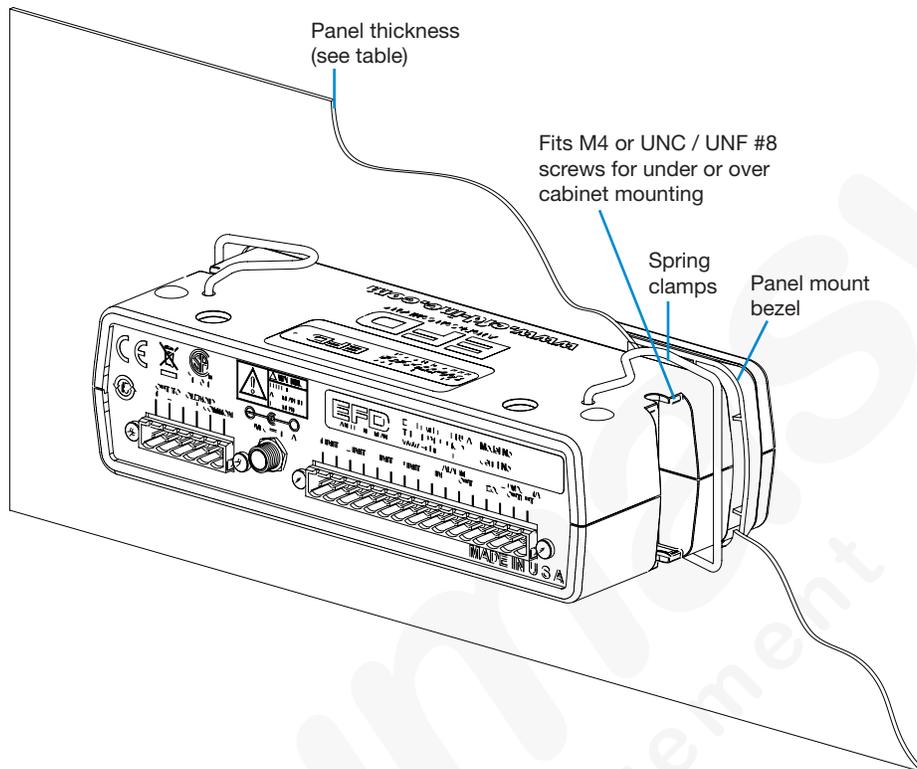


# Typical Setup – Two Valve System Installation



## Mounting the ValveMate 8000

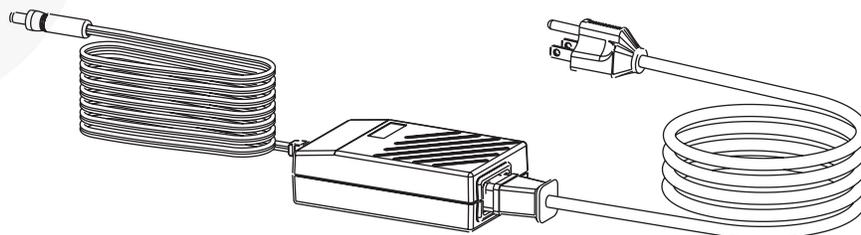
The ValveMate 8000 can be mounted either over or under a cabinet using screws or panel mounted using the optional bezel mount #7022038.



Dimension	Min		Max	
	mm	in.	mm	in.
A	183.6	7.23	185.2	7.29
B	51.6	2.03	53.1	2.09
C	R3.3	R.13	R9.4	R.37
Thickness	1.6	0.063	2.3	0.091

### Input Power Supply

A universal 24VDC remote power supply is included with each ValveMate 8000. Select a convenient location and connect to appropriate input voltage.



# Input/Output Connections

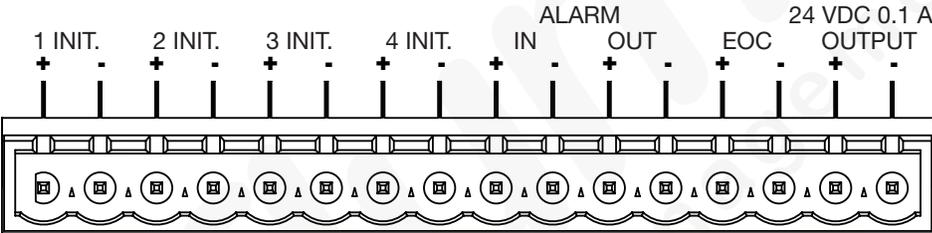
The 16 pin terminal strip includes four dispense valve initiate inputs, an alarm I/O, an End of Cycle output, and a 24 VDC courtesy power output.

The four initiate inputs can be connected in series, parallel, or to separate input sources for independent valve control, or ability to disable a specific valve when using “part in place” verification.

For detail connection schematic and instructions, refer to page 14.

The alarm I/O is used to monitor air supply pressure and / or tank low level. This I/O can be used to operate an audible alarm, or be connected to the machine controls to shut off the machine if air pressure or tank level is low. In addition, when the alarm is activated, the display will flash “ALr” *ALr*, indicating that air pressure or tank level has dropped below minimum.

The End Of Cycle (EOC) feedback can send a signal back to the machine controls signaling when the dispense cycle is finished. Using this signal can increase machine productivity by eliminating any delay after the dispense cycle and also confirms a dispense cycle has occurred. As long as an initiate sequence is in progress on any channel, the EOC circuit is open. Maximum load is 100 mA from 5 to 24 VDC.



## Initiate Connection

See page 14 for a detailed Initiate Connection Schematic.

### 1, 2, 3, and 4 Channel Initiate

The 8000 can be initiated through a time cycle by the application of 5 to 24 VDC to the appropriate input terminals. A system set-up schematic is detailed on page 9.

### Alarm IN / OUT Connection

The ValveMate 8000 features an ALARM input and output circuits. The ALARM IN can be utilized through the connection of either the low air pressure sensor (supplied), low level fluid float switch (if used) or other such device / accessory that may be selected for ALARM purposes. ALARM switches are to be wired in series and must be normally closed switches.

**If no ALARM switch is being used, the ALARM IN positive (+) and negative (-) terminals must have a jumper installed to disable the ALARM feature.**

The ALARM OUT circuit is a normally OFF electronic switch that can switch an external 5–24 VDC circuit to an external signalling device or PLC input. Maximum load is 100 mA, 5–24 VDC.



## Initiate Connection (continued)

### End of Cycle Connection (EOC)

Upon completion of a dispense cycle, an open collector circuit closes and remains closed until the next dispense cycle. This circuit can be utilized to signal back to a host computer, start another device in sequence or other operations that need to be tied into the completion of the dispense cycle. This circuit will close when all dispensing activity has completed.

Upon closure, power from an external source is allowed to pass through the circuit to operate a 5 to 24 VDC load or be monitored by the host machine controls.

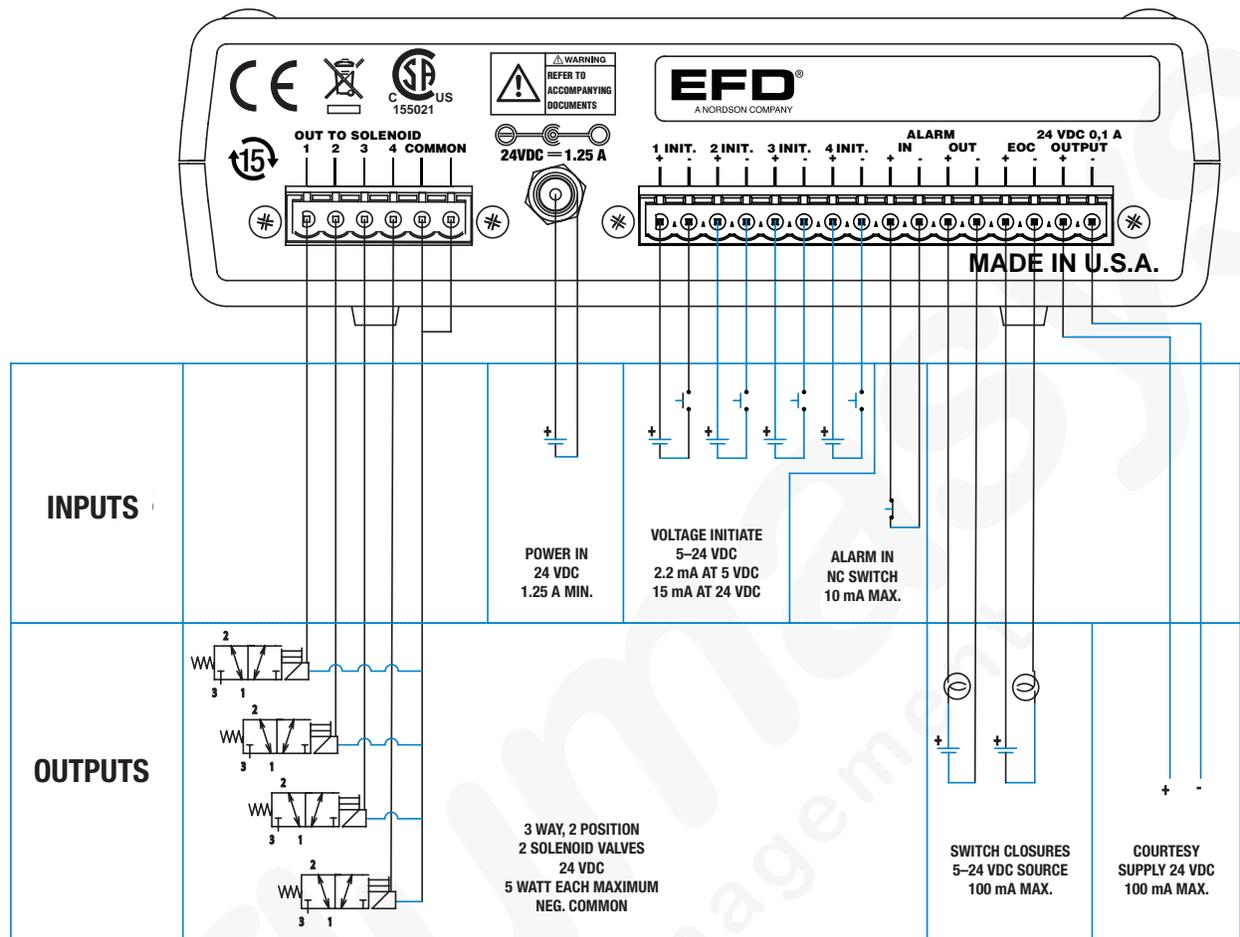
The load illustrated is a relay, but this could be any device that will operate within the 5 to 24 volt range. Power consumption of the load must not exceed 100 mA.

### 24 VDC Output

Courtesy 24 volt DC 100 mA can be used to provide power to EOC and ALARM out circuits for signalling purposes. Also, can be used as a power source for an indicator device or initiate signal through a contact closure switch to the 4-channel initiate circuit.



# Initiate Connection Schematic



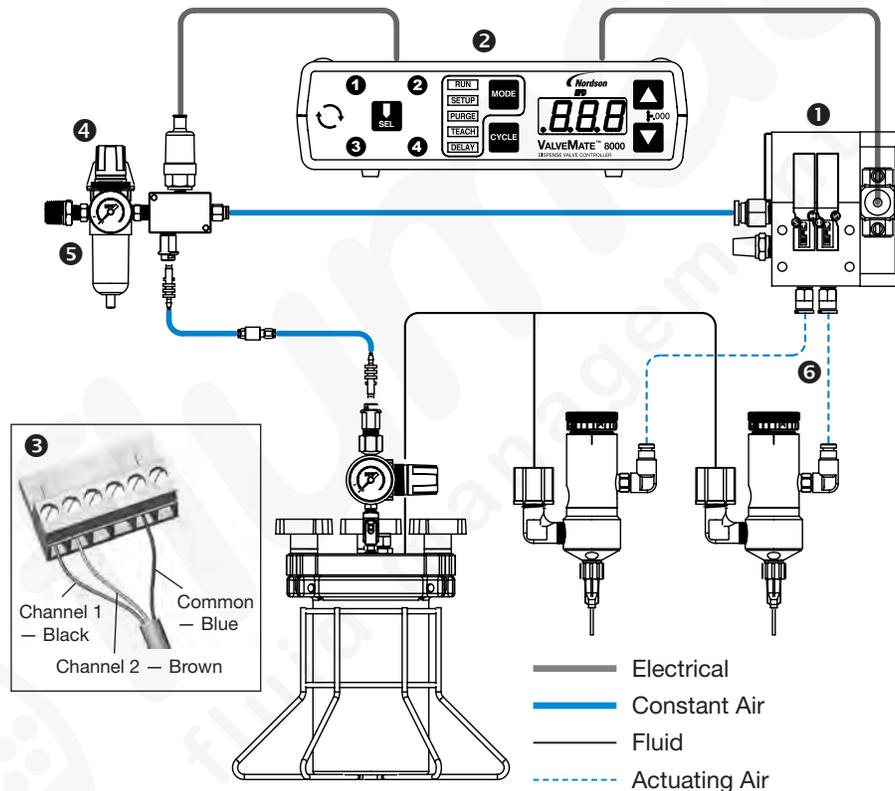
## Installing the Air Solenoids

- ❶ Mount the solenoid packs in a convenient location near the dispense valve station.
- ❷ Interconnect the solenoid pack to the ValveMate 8000 controller using the cable supplied.
- ❸ Refer to the inset for color coded wire designation.
- ❹ Connect a regulated and filtered air supply to the solenoid pack.
- ❺ Supply pressure to the solenoids should be set to 5.5 bar (80 psi).

## Install the Dispense Valves

All Nordson EFD valves are supplied with an installation manual. The manual will explain the operation of the valve and also how to set up the valve with the fluid reservoir.

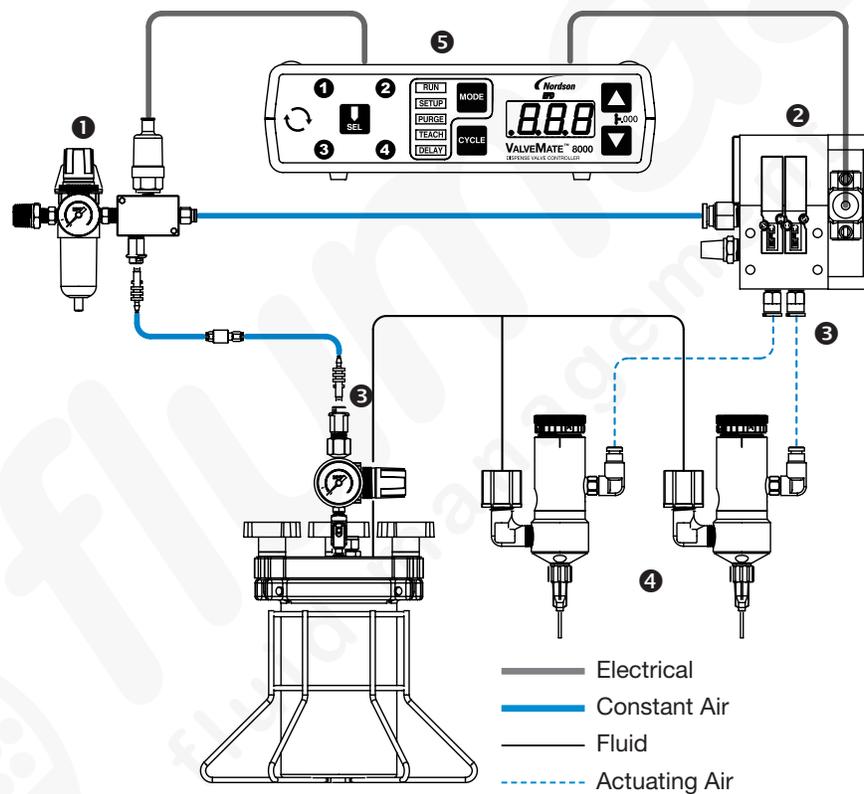
- ❻ Connect the valve actuating air hoses to the appropriate solenoid output.



## Final Setup Checklist

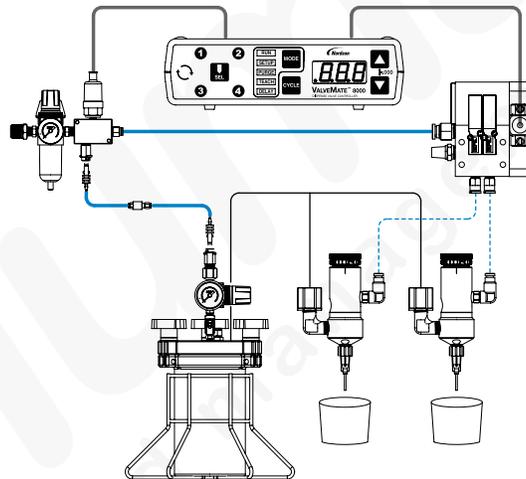
- ❶ Air pressure to solenoid pack is set to 5.5 bar (80 psi).
- ❷ Solenoids and I/O are wired correctly.
- ❸ Valves and fluid reservoir are properly connected.
- ❹ Valves are set up and dispensing tips installed in accordance with the dispense valve installation guide.
- ❺ Turn power on. Confirm indicator lamps and LED display is lit.

**NOTE:** The ValveMate 8000 is not equipped with an ON / Off switch and remains in ON condition as long as input power supply voltage is maintained.



## Testing the Dispense Valves

1. Set tank pressure. For low viscosity, low pressures and high viscosity, higher pressure.
2. Using the Mode **MODE** button on the ValveMate controller, place the controller in the PURGE **PURGE** mode.
3. Using the SEL **SEL** button, select one or all channels.
4. Place a container under the valve and press the CYCLE **CYCLE** button to open the valve and flow material until all air is purged from the system. Adjust the tank pressure or valve stroke knob to set a flow rate that is not too low or too high. A high flow rate will make setting up a small dot difficult or could cause splashing.
5. Using the Mode **MODE** button again, place the controller in the Setup mode. Using the UP / DOWN **▲ ▼** buttons next to the LED, set a dispense time of 0.050 seconds for all valves.
6. Press the CYCLE **CYCLE** button to initiate a dispense cycle. Increase or decrease the time or tank pressure to arrive at the desired deposit size. **The primary control of deposit size is the valve open time.** Final time setting may be different for each valve as this is the way we compensate for minor variations in tubing length or tolerance stack up.
7. The system is now ready to be initiated by the machine controls when the machine is started.



## Troubleshooting Guide

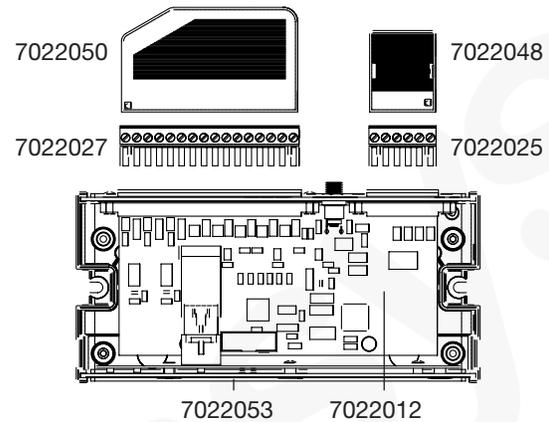
Problem	Possible Cause and Correction
LED is blinking "ALr"  and will not accept initiate signal.	<p>Air pressure to the solenoid pack has dropped below 4.1 bar (60 psi) or if low level float switch is used, tank level is low. Raise the input pressure to 4.8 bar (70 psi) or refill the tank. Press CYCLE  button to reset.</p> <p>If problem persists, make sure devices such as air cylinders are not causing a pressure drop in the ValveMate 8000 solenoid pack input air line. If no ALARM switch is being used, the ALARM IN + / - terminals must have a jumper installed to disable ALARM feature.</p>
Unit is not responding to the initiate signal.	<p>Check to make sure the unit is not in a mode other than RUN . Response delay in pneumatic circuit does not allow the valve to open when time is set at or below 0.010 seconds. Increase time. Initiate signal may have a low level of leakage. The signal must break clean before the next signal is initiated.</p>
Timer is inoperative.	<p>Check to make sure the unit is not in the steady mode. The timer is very reliable. Any failure is total so no inconsistency is possible.</p>
Flashing  on LED display.	<p>Short on the OUT TO SOLENOID circuit. Check solenoid wiring connections.</p>

If the problem cannot be corrected, or if you need further assistance, please call us. In the US, call 800.556.3484. In the UK, phone 0800 585733. In Asia, +86 (21) 3866 9006.

## Replacement Parts List

### Valvemate 8000

- 7022050: Connector housing, 16 pin
- 7022027: Plug, terminal block, 16 pin
- 7022048: Connector housing, 6 pin
- 7022025: Plug, terminal block, 6 pin
- 7002002: 5-micron filter / regulator
- 7013433: Cable, solenoid, manifold 12 ft
- 7022012: Main PC board, 8000
- 7022015: Rubber feet
- 7022019: Power supply, 40 W
- 7022023: Stand
- 7022030: Air manifold block, VM8000
- 7022032: Solenoid valve, manifold mount
- 7022036: Solenoid valve, inline, DIN
- 7022038: Panel mount kit
- 7022041: Pressure switch
- 7022043: Hole plug, 5/16, nylon
- 7022045: Cable, inline solenoid, DIN connector
- 7022053: Control panel — VM8000
- 7022246: Single solenoid assembly
- 7022247: Dual manifold w/ two solenoids
- 7022248: Quad manifold w/ three solenoids
- 7022249: Quad manifold w/ four solenoids
- 7023284: Cable, 2-cond. 24 AWG Hi-Flex
- 7026543: Kit, DC cable assembly, 2 m locking conn



## NORDSON EFD ONE YEAR LIMITED WARRANTY

All components of the Nordson EFD ValveMate 8000 are warranted for one year from date of purchase to be free from defects in material and workmanship (but not against damage caused by misuse, abrasion, corrosion, negligence, accident, faulty installation or by dispensing material incompatible with equipment) when the equipment is installed and operated in accordance with factory recommendations and instructions. EFD will repair or replace free of charge any part of the equipment thus found to be defective, on authorized return of the part prepaid to our factory during the warranty period.

In no event shall any liability or obligation of EFD arising from this warranty exceed the purchase price of the equipment. This warranty is valid only when oil-free, clean, dry, filtered air is used.

Nordson EFD makes no warranty of merchantability or fitness for a particular purpose. In no event shall EFD be liable for incidental or consequential damages.

