

OPERATING INSTRUCTIONS

FUSION MODEL 610

DIGITAL DISPENSING SYSTEM

FUSION, INC.

MODEL 610 PRECISION DISPENSER

The Model 610 Dispenser consists of:

- (1) Dispenser Control Box
- (2) Foot Pedal Switch
- (3) Power Cord
- (4) Cartridge Adapter Assembly
- (5) Stand for Cartridges
- (6) Startup Kit of Cartridges and Assorted Needles
- (7) Safety Clip
- (8) Filter trap to prevent flow back on thin liquids

INSTALLATION

- 1) Connect the dispenser to plant air. A minimum of 60 PSI of compressed air from a 1/4" line is required. The unit requires clean dry air. A 5-micron filter/regulator is required because of the vacuum transducer.
- 2) Connect the foot pedal to the rear of the dispenser control box.
- 3) Plug the power cord into the rear of the Dispenser. Then plug the 3 prong end into a grounded 115 VAC outlet. The power entry unit on the rear the dispenser can be converted to 220 VAC by opening up the fuse holder and rotating it 180°. The correct voltage should be showing in the window of the power entry unit.
- 4) Attach the adapter assembly hose to the white quick disconnect on the front of the dispenser.

OPERATION

- 1) Connect the tubing from the Adapter Assembly to the syringe cartridge that you want to use.
- 2) Turn the Dispenser's power on by using the switch on the rear of the unit over the power cord.
- 3) The large regulator knob on the left of the front control panel controls the pressure to the cartridge. Turning the knob clockwise will increase the pressure. The pressure can be read from the gauge on the front panel.
- 4) The Model 610 has a vacuum pullback feature. This feature allows you to dispense very low viscosity materials. The vacuum adjustment knob is white knob on the right side of the dispenser. Turning this knob Counter-clockwise with increase the amount of vacuum.

HOW THE DISPENSER WORKS

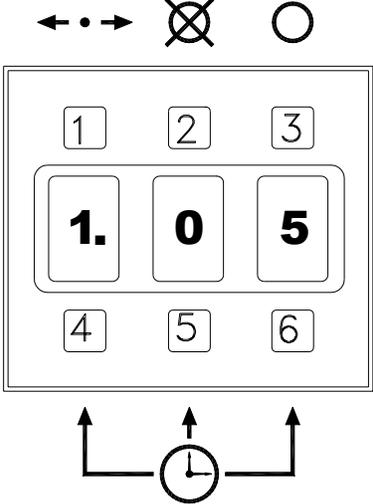
- 1) When the foot pedal is pressed the digital timer begin the timing cycle. The display will show dashes on the top and bottom.
- 2) The dispense valve is energized and the vacuum port is close.
- 3) Air pressure pushes the material out of the syringe cartridge.
- 4) At the end of the dispense time the valve shuts off and the vacuum port is now open again. The vacuum adjustment knob controls the amount of vacuum.

SETTING DISPENSE TIME

There are 2 ways to set the dispense time:

1. Use the foot pedal to teach a time. This is done the first time you need to dispense a new compound and don't know how long to set the dispense time.
2. Use the time set buttons to set the dispenser to a previously used time.

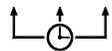
TIMER DISPLAY CONTROL

<p>1 Decimal Button – Press to move the decimal point from right to left. When no decimal point is shown the range is .000 to .999 seconds.</p> <p>2 Timer Bypass Mode – Press button once and the display changes to - - -(dashes). Now the foot pedal controls the liquid flow. Press again and the display shows the last programmed time.</p>		<p>3 Teach Mode – Press this button once and the display will start to blink. Now the time can be set using the time set buttons or the foot pedal can be used to set a time. Hold the button in for 2 second and the display will be set to 000. Press the button again to stop the flashing and store the taught time in memory.</p> <p>4-6 Time Set Buttons - Each button controls the display digit in the panel. Each press will advance the display. This can only be done in Teach Mode when the display is flashing.</p>
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HOW TO USE THE DISPLAY CONTROL PAD

 To put the dispenser in manual mode and bypass the timer

This mode is used to do manual dispensing operations or to fill the dispensing tip with material. Press the Manual Button Once and the display will change to - - -. Press again to return to timed mode. The valve is actuated as long as the foot pedal is depressed.



To set a new time on the display using the time set buttons

Press the Teach button  in and hold for 2 seconds. The display will start flashing and change to **000**. You can now adjust the time using the Time Set Buttons. When the desired time is set press the Teach button again to store the time.

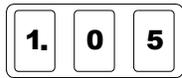
 To change the position of the decimal point

When the display is flashing indicating that you are in teach mode, the decimal point can be moved using the decimal button . When no decimal point is showing the time range is .000 to .999 seconds. The maximum time is 99.9 seconds.

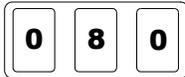
 To teach a new time using the foot pedal

Press the Teach button once. The display will start flashing. Press the foot pedal to dispense the desired amount. The time the foot pedal was pressed will be shown on the display. This can be repeated as many times as needed. You can also adjust the time using the time set buttons. Once you are satisfied press the Teach button again to store the time. The display will stop flashing indicating that you are in the timed mode.

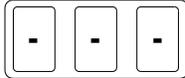
EXAMPLES OF DISPLAY TIME



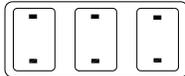
This would be a dispense time of 1.05 seconds



This would be a dispense time of 0.080 Seconds. When no decimal is displayed, it is assumed to be before the first digit.



This indicates the dispenser is in manual mode.



This indicates that the dispenser is currently in a timing cycle. At the end of the timing cycle the programmed time will be displayed again.

HOW TO ADJUST AIR PRESSURE

- 1) Pull out the air pressure regulator knob.
- 2) Turn the knob clockwise to increase the pressure. The pressure can be read on the gauge.
- 3) Once the pressure is set, press the knob in to lock in the setting.

HOW TO USE THE VACUUM CONTROL

- 1) Place the dispenser about 12 inches above the workbench. This will prevent any drawback of liquid into the vacuum transducer. The vacuum transducer can be damaged if the material being dispensed flows through the hose into the unit.
- 2) Turn the vacuum control off (clockwise) before proceeding.
- 3) Attach the safety clip to the hose and close it on the hose.
- 4) Set the air pressure between 2 and 3 PSI.
- 5) Attach the cartridge to the adapter assembly.
- 6) Release the safety clip. The material in the cartridge may begin to drip out. **CAREFULLY AND SLOWLY**, turn the knob for the vacuum control counter-clockwise until you see a slight bubbling. Then slowly decrease the Vacuum until the bubbling stops. You want to achieve a balance, so that the material doesn't drip and it doesn't bubble.
- 7) **DO NOT TIP THE CARTRIDGE UPSIDE DOWN OR LAY IT FLAT. ALWAYS REPLACE CARTRIDGE BACK IN THE STAND AFTER USE.**

TIPS ON DISPENSING

- 1) The Cartridge should be held at a 45-degree angle to work surface. The tip should contact the work surface for more consistent deposits.
- 2) Dot size is affected by three factors: Needle size, Timer setting, and pressure setting. Smaller needle sizes, shorter timing cycles and lower pressure will each reduce the size of the deposit.
- 3) Start with the air pressure of 10-15 PSI. Most materials can easily be dispensed at this pressure.
- 4) If you are working on a component in which the metal tip could damage the piece, press a Teflon sleeve over the needle allowing it to slightly protrude past the tip.
- 5) Use stoppers in the cartridges when using thick materials. This will prevent channeling and give better results.
- 6) Keep the dispenser clean. Always use clean cartridges and tips to ensure cleanliness and prevent contamination.

LOADING THE CARTRIDGE

Do not fill the cartridges completely. Only fill them to $\frac{3}{4}$ of the capacity.

Pourable liquids: Place a tip cap on the cartridge and then pour the liquid into the cartridge. Insert a plastic non-drip stopper. Carefully press the stopper down until it is just above the liquid. You may need to use a paper clip to relieve the air pressure. Once complete, use can remove the tip cap and insert a dispensing tip and begin your work.

Thick Materials: Place a tip cap on the cartridge. Use a spatula to place the material into the cartridge. You can also load the material using a caulking gun if your material is supplied that way. Then insert a plastic non-drip stopper into the cartridge. Press the stopper down to meet the material. If you have trouble pressing down the stopper, you can relieve the air in the cartridge by using a paper clip and placing it between the stopper and the wall of the cartridge. With the paper clip in place you will be able to press the stopper down to meet the material. Once complete, use can remove the tip cap and insert a dispensing tip and begin your work.

SELECTING THE CORRECT TIP SIZE

The tip size depends on two things: the particle size of the material to be dispensed and the amount you want to dispense. When determining the time and pressure settings, it is best to use the largest tip possible and keep the time setting as short as possible.

There are 12 different Stainless Steel tip sizes to suit all types of materials. Your startup kit includes a sampling of all the tips we carry. We also carry an assortment of Teflon tips.

Gage	Size	Color	Flow Thru
14	.063	White	*
15	.054	Brown	
16	.047	Dark Grey	*
18	.033	Dark Green	*
19	.027	Light Green	
20	.023	Pink	*
21	.020	Medium Purple	
22	.016	Blue	*
23	.013	Orange	
25	.010	Red	
27	.008	Lavender	
30	.007	Light Grey	

WHAT CAN I DISPENSE?

- 1) Solder and Brazing pastes - All types can be dispensed.
- 2) Lubricants - All types from thin machine oil to thick grease.
- 3) Epoxies - One or two part epoxies can be used. If two part epoxies are used, remember that the viscosity changes with time and the pressure will have to be adjusted to compensate.
- 4) Cyanoacrylates - Be very careful not to let these instant adhesives run back into the dispenser. These materials can permanently damage your dispenser. Do not allow the Cyanoacrylates to bubble by maintaining too strong of a vacuum, the fumes can also damage the dispenser. It is recommended that a line filter be installed to prevent damage to the dispenser. The filter can be easily installed by cutting the adapter hose about 12" from the quick-disconnect fitting and press both ends into the filter.
- 5) Anaerobics - Use similar precautions as for Cyanoacrylates.
- 6) Solder Mask/Solder Resist - if solvent evaporation is a problem, then an inert gas such as nitrogen can be used in place of compressed air.

SPECIFICATIONS

Size: 12 x 4 3/4 x 2 5/8
Air Input: 100-Psi max.
Air Output: 1-100 Psi
Voltage Input: 100/120/220 VAC, 50/60 Hz
Internal Voltage: 24VDC
Cycle Rate: >600/minute
Time Control: Digital Timer Control
Time Range: Programmable 0.001 – 99.9 seconds
Initiation: Momentary or self completing (see optional settings)
Memory: Non-volatile memory to store last displayed time.

I/O Connection

There is a 9 pin “D” connector on the rear of the unit that can allow the unit to be controlled by an external system.

Pin	Function
1	Initiate + start cycle (contact closure or TTL input)
2	Ground
3	Output + TTL output (20mA Max)
4	Ground
5	Initiate + start cycle (contact closure or TTL input)
6	Ground
7	Ground
8	Ground
9	Ground

Optional Settings:

Note: a qualified technician should only do this.

Changing from self-completing mode to Momentary.

1. Remove the power cord.
2. Remove the 4 screws on the bottom of the unit.
3. You will find a jumper (J5) on the main board. This should be moved so it is attached to both pins. When the jumper is on both pins of the connector the dispenser is in the momentary mode.

1-YEAR LIMITED WARRANTY

Your Dispenser is warranted to the original purchaser for 1 year from the date of purchase to be free from defects in materials and workmanship (but not against damages caused by misuse, negligence, accident, and faulty installation or by using materials incompatible with the equipment.)

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