



VC300

Pneumatic Valve Controller

Operating Manual

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OVERVIEW



Model VC300 Pneumatic Valve Controller

The VC300 is a sophisticated controller able to control the operation of pneumatic dispensing valves containing spring return or air actuated closing actions. The high speed, internal 5/2 way pneumatic solenoid valve is able to rapidly actuate and shut off the dispense valve, to prevent drooling and achieve consistent and repeatable dispense results while doing so.

The plug & play pneumatic push-in style fittings on the back of the controller, ensure it can be quickly and easily configured when actuating a pneumatic dispense valve fitted with a mechanical spring return closing action.

The controllers bright multi-line LED display provides easy user-friendly programming and visualization of the dispense parameters and conditions. The integrated pressure regulator and gauge offer the added benefit of allowing the controller to control both dispense valve actuation and the fluid pressure being supplied to the dispense valve. This results in a simple and compact valve system setup, with less external fittings & components being used at risk of damage and leakage.

Three Operation Modes

A manual mode – The dispense operation is manually controlled by a foot pedal.

A timed mode – Dispenses at a pre-set time for controlled, repeatable shot sizes.

A cycle mode – Continually dispenses at a pre-set time and at a pre-set interval.

One programmable memory slot.

Adjustable fluid output pressure (0-100psi) for setting and controlling pressure of the fluid feed system connected to the dispense valve.

Compatible with pneumatic dispense valves fitted with a spring return or air actuated closing action

Digital timer display (0.008-999.9 seconds).

7 channel I/O circuit for external control and robot integration

Air input alarm for monitoring consistent system input pressure

Industry standard ¼” air-output connector ensures easy system installation and integration into workplace environments

Compact & durable aluminum housing designed for industrial work environments.

Worldwide compatible power supply.

SAFETY

General Precautions



Do not operate the machine in excess of its maximum ratings / settings.



Make sure that the input air supply is clean and dry. A 5-micron air filter/regulator (item number 560567) is supplied and recommended to use, so as to ensure the input air supply is clean and dry.



If Cyanoacrylate adhesives or other moisture sensitive fluids are being used, an inline coalescing filter (item number 560779C) must be installed to maintain dispensing system performance



The fluid being dispensed may be toxic and / or hazardous. Refer to the Material Safety Data Sheet for proper handling and safety precautions.



Do not smoke or use near an open flame when flammable materials are being dispensed.



Do not expose the machine directly to sunlight.



Avoid cleaning the machine with aggressive solvents – neutral detergents are preferred.

VC300 Malfunction



If the machine malfunctions, shut down the machine immediately. This can be done by either pushing the power switch at the back of the unit into the off position or disconnecting the power cord.



Isolate pneumatic air supply to the controller.



Identify the cause of machine malfunction and fix accordingly before switching back on.

SAFETY

Inappropriate Use

If the machine is used in a way other than described in this manual, it may cause damage to self or property.

	<i>Do not use any components with the machine other than Fisnar authorized components.</i>
	<i>Do not use incompatible materials.</i>
	<i>Do not make any modifications to the machine. All repairs are to be done using Fisnar specified spare parts.</i>
	<i>Do not operate the machine in excess of its maximum ratings / settings.</i>

Fire Prevention

Refer to the following instructions to avoid any fire or explosion.

	<i>Assess your surroundings and the location of the nearest fire extinguisher and Emergency Exit.</i>
	<i>Do not smoke or use near an open flame when flammable materials are being dispensed.</i>
	<i>Immediately disconnect power if any sparking or smoke appears.</i>
	<i>Do not expose the machine directly to sunlight.</i>

Maintenance

The VC300 is generally a maintenance free machine. However, to ensure smooth operation please follow the below instructions.

	<i>Only use non-woven cleaners on the machine.</i>
	<i>Periodically inspect pneumatic and fluid tubing for signs of fatigue and replace as necessary</i>
	<i>Ensure that compressed air supply to the machine is clean and moisture free.</i>
	<i>Periodically check electrical connections and pneumatic fittings are secure.</i>

SPECIFICATIONS

Dimensions (W x D x H):	7.56" x 5.04" x 3.00" (192 x 128 x 76 mm)
Weight:	2.36 lbs (1.07 kg)
Input AC to Power Supply:	100 – 240 VAC, 50 / 60 Hz
Output DC from Power Supply:	24 VDC – 1 Amp
Cycle Rate:	Up to 600 cycles / min
Relative Humidity:	20 – 90% (No Condensation)
Operating Temperature:	50 – 104°F (10 – 40°C)
Timer:	0.008 – 999.9 seconds
Air Input:	100 psi (7 bar) max
Air Output:	1 – 100 psi (0.07 – 7 bar)
Standards:	CE Approved, UKCA Approved, EMC Compliant, RoHS Compliant

ACCESSORIES

Item	Description	Quantity
5601911	Power Adaptor (Input: 100 – 240 VAC / Output: 24 VDC)	1
5601888	Foot Pedal	1
560567	5-Micron Air Filter	1
5801060-10FT	1/4" OD x 1/8" ID Polyurethane Tubing – 10FT	1
560746A	Straight 1/4" OD Push Connector x 1/4" NPT Male	3
560716	Nipple 1/4" NPT Male	1
560945	Street Tee 1/4" NPT Male x 1/4" NPT Female	1
580057	Female Quick Connect x 1/4" NPT Male Fitting	1
51495K173	1/4" OD Push to Connect Air Plug	2
5779K712	Push To Connect Air Fitting 1/4" Stem OD X 5/32" Tube OD	3
2146T13	15 Pin D-Sub Connector Plug	1

EXTERNAL CONTROLS

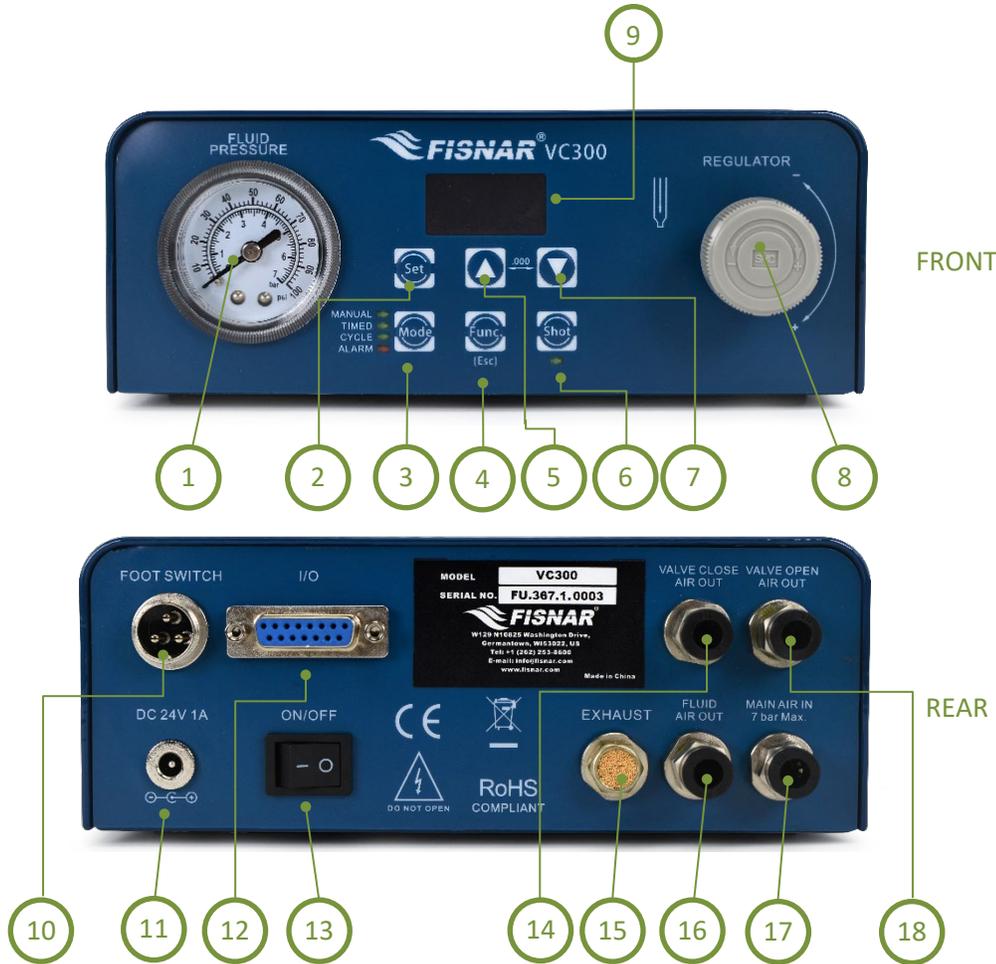


FIG. 1: External Controls - Overview

Item	Illustration	Item	Illustration	Item	Illustration
1	Air Pressure Gauge	7	Scroll Down Button	13	Power On/Off Switch
2	Set Button	8	Air Pressure Regulator	14	Valve Close Air Out Port
3	Mode Button	9	Display	15	Exhaust Port
4	Function Button	10	Foot Switch Connector	16	Fluid Air Out Port
5	Scroll Up Button	11	Power Input Connector	17	Air Inlet Port
6	Shot Button	12	I/O Connector	18	Valve Open Air Out Port

EXTERNAL CONTROLS

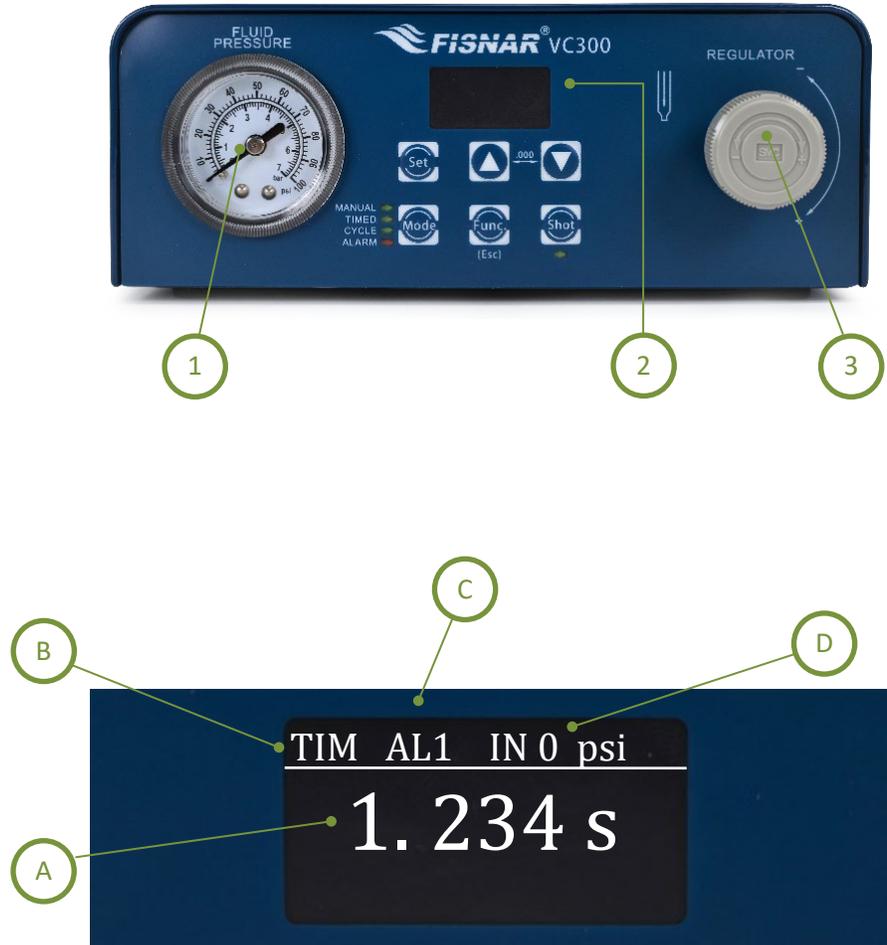


FIG. 2: External Controls – Front

1.	Air Pressure Gauge	<p>Shows the amount of pressure being used to pressurize the fluid feed system that is feeding the dispense fluid into the valve.</p> <p>The pressure gauge value is set and controlled by the pressure regulator (3).</p> <p>The set pressure is fed out of the machine to the external fluid feed system from the “Fluid Air Out” port (16).</p>
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<p>2A.</p>	<p>Digital Display Screen</p>	<p>In MANUAL mode, when the foot pedal switch or shot button is pressed or an external machine actuation input signal is received, the dispense valve will be actuated to start dispensing fluid. The machine will also begin counting up from 0.000 seconds.</p> <p>When the foot pedal switch or shot button is released or an external machine actuation input signal is removed, the dispense valve will stop being actuated and dispensing of fluid will stop. The machine will display and hold the dispense cycle time until the next actuation cycle.</p> <p>When the foot pedal switch or shot button is pressed again or an external machine actuation input signal is received again, the timer will automatically reset and start counting up from 0.000 seconds, and the dispense valve will be actuated to start dispensing fluid again.</p> <p>When in TIMED mode, the saved dispense time (seconds) will be displayed. When the foot pedal switch or shot button is pressed or an external machine actuation input signal is received, the dispense valve will be actuated to start dispensing fluid. The machine will also begin counting up from 0.000 seconds until it reaches the saved dispense time.</p> <p>Once the saved dispense time has been reached, the dispense valve will stop being actuated and dispensing of fluid will stop. The machine will display and hold the dispense cycle time until the next actuation cycle.</p> <p>One (1) individual program is saved to the machine and automatically recalled when the machine is powered back on.</p> <p>When in CYCLE mode, the saved dispense time (seconds) will be displayed. When the foot pedal switch or shot button is pressed or an external machine actuation input signal is received, the dispense valve will be actuated to start dispensing fluid. The machine will also begin counting up from 0.000 seconds until it reaches the saved dispense time.</p> <p>Once the saved dispense time has been reached, the dispense valve will stop being actuated and dispensing of fluid will stop. The machine will then automatically start counting down from the time set in the “P00. Auto Cycle Stop” function setting to 0.000 seconds.</p> <p>Once the machine has counted down to 0.000 seconds, the dispense valve will automatically be actuated to start dispensing fluid again. The machine will also automatically begin counting up from 0.000 seconds until it reaches the saved dispense time.</p> <p>This looping cycle will continue to be repeated until the foot pedal switch or shot button is pressed again or an external machine actuation input signal is received again.</p>
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2B.	Digital Display Screen – Mode	<p>The current mode that the machine is operating in, is displayed here.</p> <p>MAN = Manual Mode TIM = Timed Mode CYC = Cycle Mode</p>
2C.	Digital Display Screen - Alarm	<p>If an alarm circuit is activated, it will be displayed here.</p> <p>AL 1 = Input Pressure Alarm AL2 = External Error Input Alarm</p> <p>A red LED light will light up next to the text “ALARM” on the front panel of the controller, to identify the “Alarm Out” signal has been activated.</p> <p>If the “Alarm Out” signal is activated during a program cycle, the program cycle will be automatically stopped.</p> <p>It will also not be possible to actuate a new program cycle until the “Alarm Out” signal has been switched off.</p>
2D.	Digital Display Screen – Pressure In	<p>Shows the amount of pressure being supplied into the machine and being used to actuate the connected dispense valve.</p> <p>Pneumatically operated dispense valves are designed to be actuated at a minimum pressure of 70psi (4.8bar).</p>
3.	Pressure Regulator	<p>Adjusts the amount of pressure being used to pressurize the fluid feed system that is feeding the dispense fluid into the valve.</p> <p>To reach the desired pressure, turn the knob counterclockwise to a point below the required pressure, and then turn the knob clockwise to reach the required pressure.</p> <p>The regulator can be locked into position by tightening the jam nut behind the knob against the fitting on the front panel of the machine.</p>

EXTERNAL CONTROLS

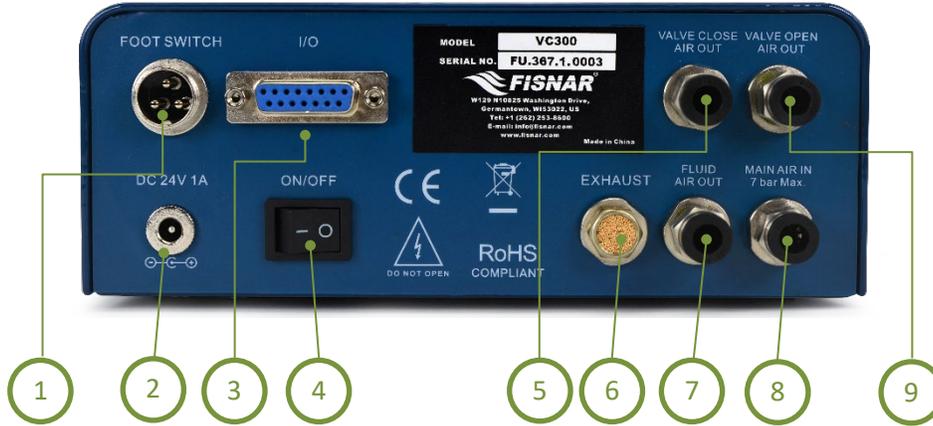


FIG. 3: External Controls - Back

1.	Foot Switch Connector	The foot pedal switch is connected here. Or it can be used for connecting to an external device (e.g. Fisnar dispense robot) that will send the dispense start actuation signal to the machine.
2.	Power Input Connector	Power input cable from the external power supply is connected here.
3.	I/O Connector	Where the external machine I/O input signals and output signals are connected. A courtesy 24V + output is also included on the I/O Connector.
4.	On / Off Switch	Used to switch the machine on or off.
5.	Valve Close Air Out Port	<p>At the end of a dispensing cycle, pressurized air will exit this port. It is used for closing the dispense valve via the “Operating Air Close” / “2nd Operating Air Inlet” port on the dispense valve.</p> <p>The pressurized air that exits this port is equal to the air pressure that is being supplied to the “Main Air In” port</p> <p>This port is only designed for optional use when the machine is connected to a 790HP, VDP150, VMS400, VMP30H, VP300 Fisnar dispense valve.</p> <p>Typically, this is only needed when using a high viscosity fluid material, which prevents the return spring fitted inside the dispense valve, from creating a fast and positive shut-off actuation.</p>

		If this function is not required or cannot be used due to the dispense valve model connected to the machine, then a blanking plug MUST be inserted into the port.
6.	Exhaust Port	At the end of a dispensing cycle, pressurized air that was used to control the dispense valve actuation will be exhausted from this Exhaust Port.
7.	Fluid Air Out Port	<p>The regulated compressed air set by the pressure regulator and displayed on the pressure gauge on the machine, will exit from this port. It is used to allow the safe pressurization of the connected fluid feed system (e.g. syringe barrel, cartridge, etc.)</p> <p>If this connection is not required for use (e.g. a fluid reservoir tank is being used as the fluid feed system with its own individual pressure supply and regulator), it is recommended that the pressure regulator on the machine be set to 0psi and a blanking plug be inserted into this port.</p>
8.	Main Air In Port	<p>External Compressed air 70-100 psi (5-7 bar) is to be connected here.</p> <p>To prevent damage to internal pneumatic components of the machine, make sure that the input air supply is clean and dry.</p> <p>A 5-micron air filter/regulator (item number 560567) is supplied and recommended to be used, to ensure the input air supply is clean and dry.</p>
9.	Valve Open Air Out Port	<p>At the start of a dispensing cycle, pressurized air will exit this port. It is used for opening the dispense valve via the “Operating Air Open” / “Operating Air Inlet” port on the dispense valve.</p> <p>The pressurized air that exits this port is equal to the air pressure that is being supplied to the “Main Air In” port</p> <p>Pneumatically operated dispense valves are designed to be actuated at a minimum pressure of 70psi (4.8bar).</p> <p>To prevent actuation of the connected dispense valve below the minimum specified working pressure that may have a negative effect on the dispense result, we recommend enabling the “Low Pressure Alarm” function (P10) on the machine and setting the “Low Pressure Limit” (P11) value to 70psi.</p>

EXTERNAL CONTROLS



FIG. 4: Control Buttons

<p>Mode</p>	<p>Press the  button to switch between the three different dispense modes (MANUAL, TIMED or CYCLE). A green LED light will light up next to the text “MANUAL”, “TIMED” or “CYCLE”, to identify the current dispense mode that the machine is operating in.</p>
<p>Set</p>	<p>When in “TIMED” or “CYCLE” mode Press the  button to change the dispense time using the  and/or  button.</p> <p>When adjusting the dispense time, the  button is used as a scroll button to move between the numerical digits showing on the digital display screen.</p> <p>When the machine is in the “FUNCTION” menu, the  button is used to go into and out of the selected function setting.</p>
<p>UP and DOWN</p>	<p>When in “TIMED” or “CYCLE” mode, press the  and/or  button to make on the fly adjustments by increasing or decreasing the dispense time.</p>

	<p>The numerical digit adjusted will be the last numerical digit that was flashing, when the dispense time was set using the  button.</p> <p>When the machine is in the “FUNCTION” menu, the  and/or  button is used to scroll though the different Function settings.</p> <p>When the machine is in a function setting, press the  and/or  button to adjust the function setting value as required.</p>
<p>Shot</p>	<p>Press the  button to actuate the machine and begin dispensing fluid from the connected dispense valve.</p>
<p>Func. (Esc)</p>	<p>Press and hold the  button for 3 seconds to enter the Function Menu to make changes to the Function settings, which provides additional control and adjustment to the dispense application and machine settings.</p>

MACHINE SET UP

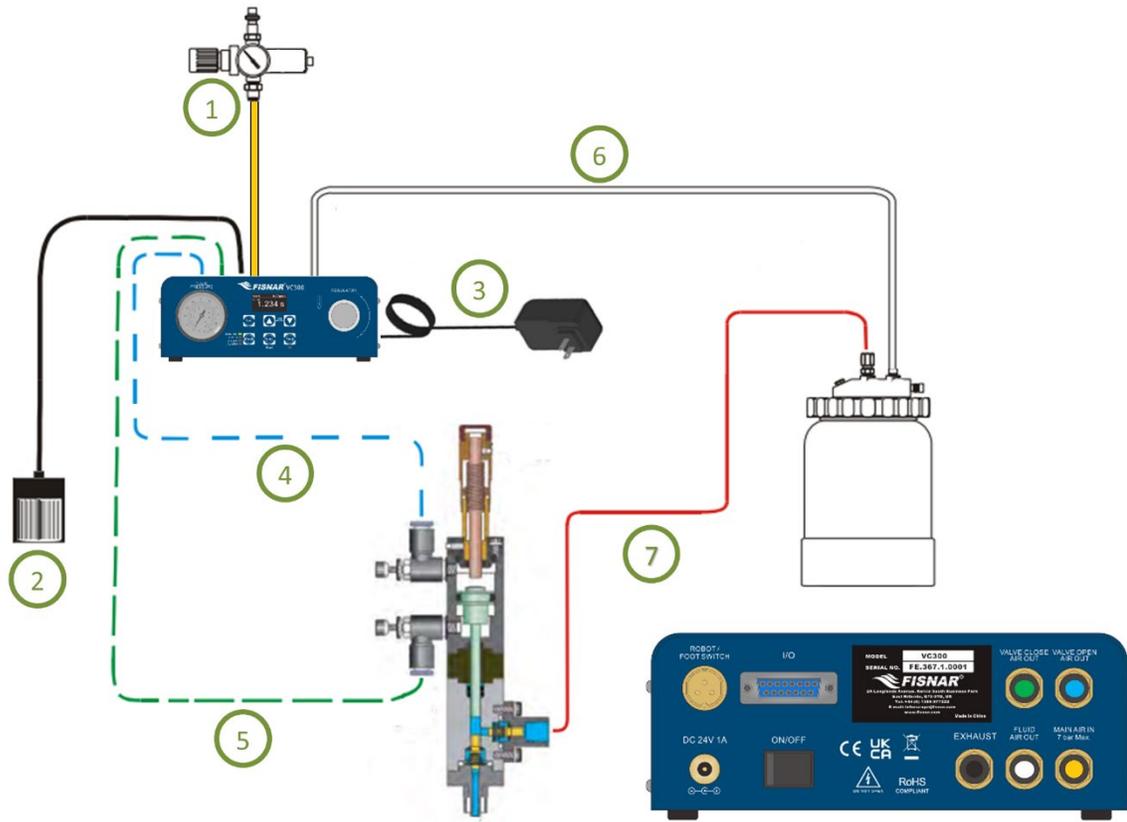


FIG. 5: Machine Setup

1.	Connect air hose from compressed air 70-100 psi (5-7 bar) to the “Main Air In” port on the back of the machine.
2.	<p>Option 1:- Connect the foot pedal switch to the “Robot / Foot Switch” port on the back of the machine.</p> <p>Option 2:- Connect the cable from the dispenser port on the Fisnar robot to the “Robot / Foot Switch” port on the back of the machine.</p> <p>Option 3:- Connect a cable from the I/O connector port on the back of the machine to an external device to allow remote actuation.</p>
3.	Attach appropriate country type plug adapter onto the power supply and then connect Electrical Power Cord (3) to the power input connector on the back of the machine.

<p>4.</p>	<p>Connect a length of ¼” OD pneumatic tubing between the operating air inlet / open fitting of the dispense valve and the “Valve Open Air Out” port on the back of the machine.</p> <p>If a third-party dispense valve is being connected to the machine, then depending on the air fitting size used on the dispense valve, either ¼” OD tubing (5801060-10FT), or 5/32”/4mm OD tubing (5601966-10FT) in conjunction with air fitting reducer (5779K712) installed into the “Valve Open Air Out” can be used.</p>
<p>5.</p>	<p>Connect a length of ¼” OD pneumatic tubing between the 2nd operating air inlet /close fitting of the dispense valve and the “Valve Close Air Out” port on the back of the machine.</p> <p>If a third-party dispense valve is being connected to the machine, then depending on the air fitting size used on the dispense valve, either ¼” OD tubing (5801060-10FT), or 5/32”/4mm OD tubing (5601966-10FT) in conjunction with air fitting reducer (5779K712) installed into the “Valve Close Air Out” can be used.</p> <p>If the dispense valve being connected to the machine does not utilize this function, then instead insert a blanking plug into the “Valve Close Air Out” port on the back of the machine.</p>
<p>6.</p>	<p>Connect ¼” OD pneumatic tubing between the “Fluid Air Out” port on the back of the machine and the air inlet port of the connected fluid feed system to be pressurized.</p> <p>If a Fisnar QuantX syringe barrel is being used as the fluid feed system to the dispense valve, then a standard Fisnar syringe barrel adapter can be used as the compressed air connection between the syringe barrel and “Fluid Air Out” port on the back of the machine.</p> <p>(If the syringe barrel adapter to be used with the machine has a bayonet fitting attached to the end of it, make sure to cut the bayonet fitting off from the hose and install the included push to connect air fitting 1/4” stem x 5/32” tube O.D. (5779K712) onto the end of the tubing.)</p> <p>If the “Fluid Air Out” port is not required for use (e.g. a fluid reservoir tank is being used as the fluid feed system with its own individual pressure supply and regulator), it is recommended that the pressure regulator on the machine be set to 0psi and a blanking plug be inserted into this port.</p>
<p>7.</p>	<p>Connect ¼” OD fluid tubing between the fluid outlet of the fluid feed system and the fluid inlet fitting on the dispense valve, using the appropriate required fittings. Note, in some cases e.g., when dispensing high viscosity fluid materials, it may be necessary to use 3/8” OD fluid tubing.</p> <p>If a Fisnar QuantX syringe barrel is being used as the fluid feed system to the dispense valve, then an 1/8” luer lock elbow fitting (5601821) can be used to connect the syringe barrel directly to the dispense valve. Note, dispense valves fitted with a ¼” NPT female fluid inlet thread will also require reducer fitting (561861).</p>

DISPENSE SETUP

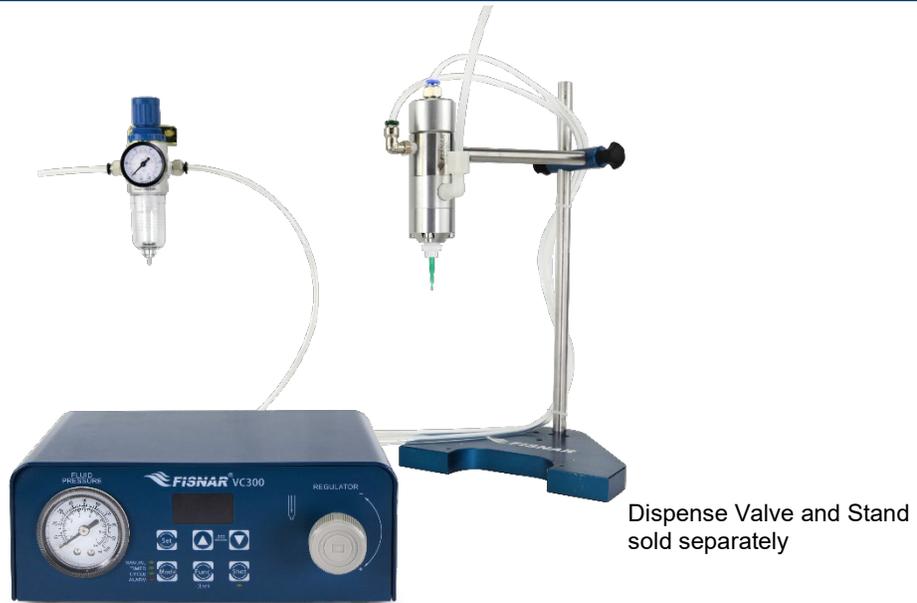


FIG. 6: Dispense Setup

1.	Ensure fluid fittings used to connect the fluid feed system to the dispense valve are tight and secure.
2.	Switch on the machine using the power switch located on the back panel.
3.	Gradually apply air pressure (80 psi) to the “Main Air In” port on the back of the machine.
4.	Slowly increase the fluid pressure by rotating the pressure regulator clockwise on the front of the machine. Stop rotating the pressure regulator when fluid can be seen travelling through the fluid tubing from the fluid feed system to the dispense valve.
5.	Check the operation mode of the machine is set to “Manual” mode.
6.	Locate the stroke control knob on the top of the dispense valve. Rotate the stroke control knob clockwise until it can no longer be rotated any further. Then rotate the stroke control knob counterclockwise by 1 full turn (360°). This step can be ignored when using Fisnar 790HP spool valve.

7.	<p>Press the shot button on the front of the machine until fluid begins to dispense out of the fluid outlet orifice of the connected dispense valve. When fluid is consistently flowing from the fluid outlet of the dispense valve and no bubbles/air-pockets are observed, release the shot button on the front of the machine.</p> <p>If no fluid is dispensed from the dispense valve after approx. 1 minute stop the actuation of the machine. The below steps can then be carried out, and the machine actuated again.</p> <ul style="list-style-type: none">a) Rotate the stroke control knob counterclockwise by 1 full turn (360°).b) Increase fluid pressure. <p>If fluid is still not dispensed, please contact your local sales representative.</p>
8.	<p>Attach a suitable dispense tip to the dispense valve.</p> <p>Note:- A low gauge number / larger I.D. dispense tip will dispense a larger diameter dot or bead width. A high gauge number / smaller I.D. dispense tip will dispense a smaller diameter dot or bead width.</p>
9.	<p>Use the below parameters to achieve the necessary settings for the dispensing application.</p> <ul style="list-style-type: none">1.) Adjust the fluid pressure of the fluid feed system, and stroke control knob on the dispense valve to achieve the required flow rate.2.) Adjust the dispense time to set the required volume / time.3.) Adjust the dispense tip size to assist in fine tuning the dispense dot or bead size.

DISPENSE MODES



FIG. 7: Dispense Mode - Manual

MANUAL MODE

	
1.	<p>Use the  button to switch to MANUAL mode. The green light on the front of the machine next to the text “MANUAL” will light up.</p> <p>MANUAL mode allows the operator to actuate the machine on demand whenever the foot pedal switch or shot button is pressed.</p> <p>MANUAL mode can also be used to allow an externally connected device to control the dispense actuation and time signal duration of the machine.</p>
2.	
	<p>Press the foot pedal switch or  button or supply an external machine actuation input signal to start the machine and begin dispensing.</p>

Release the foot pedal or  button or remove an external machine actuation input signal to stop dispensing.

The machine will count the amount of time you are dispensing while the foot pedal or  button is pressed, or an external machine actuation input signal is received.

This may be helpful in determining a dispense time to be used when actuating the machine in TIMED mode.

The TIME shown on the digital display after the foot pedal or  button, or external machine actuation input signal has been released, will automatically reset to zero (0) seconds every time the machine is actuated.

DISPENSE MODES



FIG. 8: Dispense Mode - Timed

TIMED MODE



Use the  button to switch to TIMED mode. The green light on the front of the machine next to the text "TIMED" will light up.

TIMED mode allows the operator to dispense for a set time period, regardless of how long the foot pedal is pressed.

TIMED mode can also be used to allow an externally connected device to control the dispense actuation by sending an initial momentary signal. The machine will then control the time period that the dispense valve is actuated for.

1.



Press the  button to change the current dispense time.

If the dispense time is being set for the first time the first digit on the left side of the display will start flashing, or if the dispense time is being changed, then the last digit position changed previously will start flashing.



Note that if the  button or  buttons are not pressed again within 2.3 seconds, the digits will stop flashing and the dispense time showing on the display will be automatically saved.

	<p>Press the   buttons to adjust the value (0-9). The digit that is flashing in the display screen is the one that will be adjusted.</p> <p>Press the  button again to move to the next digit to the right of the one that was previously flashing. Adjust accordingly to the correct numerical value using the   buttons.</p> <p>Continue to press the  button to scroll through the digit positions, adjusting the numerical values as required.</p> <p>When the  button is pressed when the fourth (last) digit is flashing the first numerical digit will start flashing, allowing you to cycle through the digit positions again, in a continuous cycle.</p> <p>Once the correct dispense time has been set, allow the digits on the display screen to continue flashing. After 2.3 seconds, the digits will stop flashing and the dispense time showing on the display will be automatically saved.</p>
<p>2.</p>	<p>Press the foot pedal or the  button or supply a momentary external machine actuation input signal to start the machine and begin dispensing.</p> <p>The digital display will automatically start counting up from 0.000 seconds until it reaches the saved dispense time.</p>
<p>3.</p>	<p>The machine will continue dispensing until the saved dispense time is reached.</p>
<p>4.</p>	<p>When the saved dispense time is reached the machine will automatically stop dispensing.</p>

SETTING A DISPENSE TIME GREATER THAN 9.999 SECONDS.



Use the  button to scroll to the first digit position. use  button to increase the numerical value upwards. Once the numerical value “9” is displayed, press the  button again.

NOTES



The first digit numerical value will change to “1”, the second digit numerical value will change to “0” and the decimal point “.” will automatically move from being displayed after the first digit position to after the second position.

The numerical value that was originally in the second digit position will move to the third digit position, and the numerical value that was originally in the third digit position will move to the fourth (last) digit position.

The numerical value that was originally in the fourth digit position will now not be shown and be disregarded.

REDUCING A DISPENSE TIME FROM GREATER THAN 10.00 SECONDS

Use the  button to scroll to the first digit position. use  button to decrease the numerical value downwards until the numerical value “1” is displayed.

Use the  button to scroll to the second digit position. use  button to decrease the numerical value downwards. Once the numerical value “0” is reached, press the  button again.

NOTES

The first digital numerical value will automatically change to “9”, the second digit numerical value will change to the numerical value that was originally displayed in the third digit position.

The third digit numerical value will change to the numerical value that was originally displayed in the fourth digit position.

The fourth digit numerical value will change to the numerical value that was originally displayed in the fourth digit position when the dispense time was changed to a dispense time greater than 9.999 seconds.

DISPENSE MODES



FIG. 9: Dispense Mode - Cycle

CYCLE MODE

1.



Use the  button to switch to CYCLE mode. The green light on the front of the machine next to the text "CYCLE" will light up.

CYCLE mode allows the operator to create a repeatable cycle of dispense actuations.

For example, if you would like to dispense for 1 second then wait for 3 seconds and cycle these times over and over again.



Press the  button to change the current dispense time, e.g., 1.000.

If the dispense time is being set for the first time the first digit on the left side of the display will start flashing, or if the dispense time is being reset, then the last digit position changed previously will start flashing.



Note that if the  button or  buttons are not pressed again within 2.3 seconds, the digits will stop flashing and the dispense time showing on the display will be automatically saved.

Press the   buttons to adjust the value (0-9). The digit that is flashing in the display screen is the one that will be adjusted.

Press the  button again to move to the next digit to the right of the one that was previously flashing. Adjust accordingly to the correct numerical value using the   buttons.

Continue to press the  button to scroll through the digit positions, adjusting the numerical values as required.

When the  button is pressed when the fourth (last) digit is flashing the first numerical digit will start flashing, allowing you to cycle through the digit positions again, in a continuous cycle.

Once the correct dispense time has been set, allow the digits on the display screen to continue flashing. After 2.3 seconds, the digits will stop flashing and the dispense time showing on the display will be automatically saved.

2.

Press and hold the  button for 3 seconds to enter the Function menu.

Press the  or  button to navigate to the Function Setting P00. Auto Cycle Stop.

Press the  button to enter the Function setting to make a change.

Press the  or  button to adjust the Auto Cycle Stop Time as required, e.g., 5.000.

Press the  button to exit the selected Function setting.

	<p>Press and hold the  button for 3 seconds to exit the Function menu.</p>
2.	<p>Press the foot pedal or the  button or supply a momentary external machine actuation input signal to start the machine and begin dispensing.</p> <p>The digital display will automatically start counting up from 0.000 seconds until it reaches the saved dispense time.</p>
3.	<p>The machine will continue dispensing until the saved dispense time is reached.</p>
4.	<p>When the saved dispense time is reached the dispense valve will stop being actuated and dispensing of fluid will stop.</p>
5.	<p>The machine will then automatically start counting down from the time set in the “Auto Cycle Stop Time” setting saved in the Function Menu to 0.000 seconds.</p>
6.	<p>Once the machine has counted down to 0.000 seconds, the dispense valve will automatically be actuated to start dispensing fluid again. The machine will also automatically begin counting up from 0.000 seconds until it reaches the saved dispense time.</p>
7.	<p>This looping cycle will continue to be repeated until the foot pedal or the  button is pressed again, or a momentary external machine actuation input signal is received again.</p>

FUNCTION MENU

The machine offers built-in functions that provide additional control and adjustment to the dispense application and machine settings.

Instructions:

1. Press and hold the  button for 3 seconds to enter the Function menu.
2. Press the  or  button to scroll through the available settings.
3. Press the  button to enter the selected Function setting to make a change.
4. Press the  or  button to adjust the setting as required.
5. Press the  button to exit the selected Function setting.
6. Press and hold the  button for 3 seconds to exit the Function menu.

Overview:

Function Setting	Description
P00. Auto Cycle Stop	Sets the time that the connected dispense valve will remain idle for after executing a program cycle, before starting the next program cycle, when the machine is in "CYCLE" mode.
P07. Auto Purge Delay	Sets the maximum allowed time for a dispense actuation signal to be received after the end of the previous program cycle, before the connected dispense valve is automatically actuated, according to the defined Auto-Purge Dispense Time (P08)
P08. Auto Purge Dispense	Sets the time that the connected dispense valve will automatically actuate for when the Auto-Purge Delay time reaches zero.
P09: Manual Actuation Switch Type	Sets if the dispense actuation signal will work as a momentary "0" or latching "1" type.

P10. Low Pressure Alarm	Switches the Low-Pressure Alarm on or off.
P11. Low Pressure Limit	Sets the pressure limit that the Low-Pressure Alarm will be activated at.
P13. P-Unit	Sets the pressure unit of the main air pressure in.
P15. Lock Screen	When activated the operator is prevented from making any adjustments to the machine settings. The Function menu also becomes password protected.
P17. Glue Alarm Time	Sets the amount of time that the machine will operate for before an alarm signal is automatically activated preventing the machine from being actuated.
P20. Program Version	Displays the software version installed on the controller.
P21. Dispense Count	Displays the total number of completed dispense cycles. This counter is resettable.
P22. Total Machine Cycles	Displays the total number of completed dispense cycles made by the machine. This counter is not resettable.
P23. Total Dispense Time	Displays the total number of minutes the machine has been actuated for. This counter is not resettable
P24. Language	Selects the language displayed on the machine.

FUNCTION MENU

P00. Auto Cycle Stop

This function is only used when the machine is in “CYCLE” mode. It allows the user to set a delay time in between one program cycle ending and the next program cycle automatically starting.

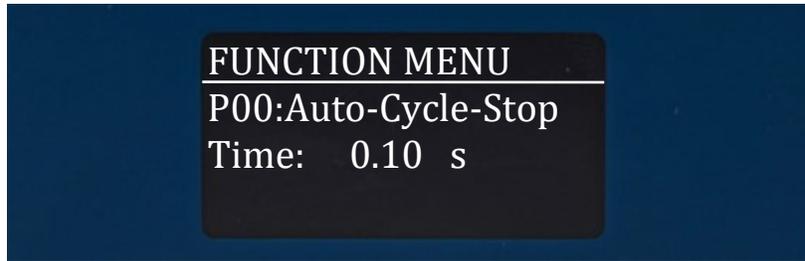


Fig. 10: Auto Cycle Stop

1	When the Auto Cycle Stop page is displayed, press the  button to enter the setting page for the Auto Cycle Stop function.
2	Press the  or  buttons to set the required time in seconds.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P07. Auto Purge Delay Time

This function allows the user to set the maximum allowed time for a dispense actuation signal to be received after the end of the previous program cycle, before the connected dispense valve is automatically actuated, according to the defined Auto-Purge Dispense Time (P08).

When set, the Auto Purge Delay Time will start when the machine has been actuated for the first time after it has been switched on. At the end of the first program cycle the home screen will display the auto purge delay time (AP) and begin counting down to zero. When the timer reaches zero the machine will automatically actuate for the time defined in the Auto Purge Dispense Time (P08).

The Auto Purge Delay Time can be cancelled/reset at any time by pressing the  button.

This function is typically used with fluid materials that may cure/harden over time. It is commonly used when dispensing 2 component fluid materials.

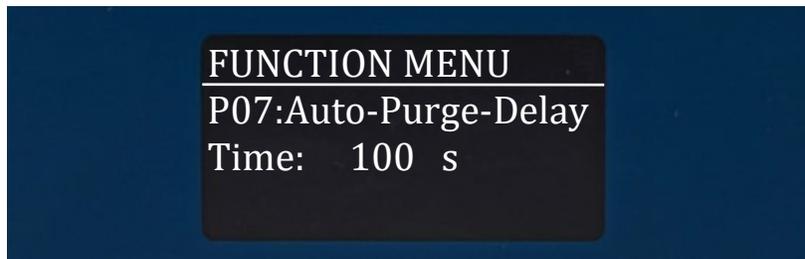


Fig. 11: Auto Purge Delay Time

1	When the Auto Purge Delay Time page is displayed, press the  button to enter the setting page for the Auto Purge Delay Time function.
2	Press the  or  buttons to set the required time in seconds.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P08. Auto Purge Dispense Time

This function sets the time that the connected dispense valve will automatically actuate for when the Auto-Purge Delay time reaches zero.

The time set is typically the amount of time needed to fully purge the volume of fluid within the wetted material path that has begun to cure/harden during the Auto Purge Delay Time (P07).

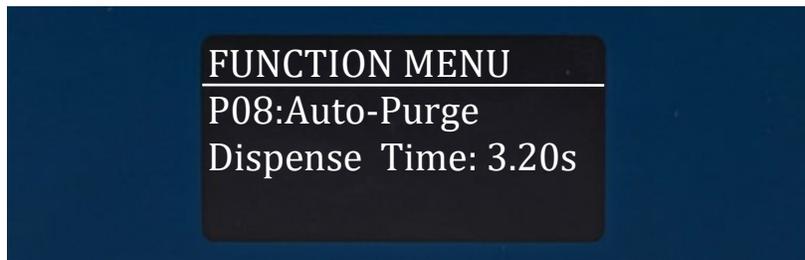


Fig. 12: Auto Purge Dispense Time

1	When the Auto Purge Dispense Time page is displayed, press the  button to enter the setting page for the Auto Purge Dispense Time function.
2	Press the  or  buttons to set the required time in seconds.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P09. Manual Actuation Switch Type

This function sets if the dispense actuation signal will work as a momentary or latching type when the machine is set to "MANUAL" mode.

Momentary (0) = When in **MANUAL Mode**, the machine will actuate for as long as the dispense actuation signal is received. When the dispense actuation is not received the machine will stop actuating.

Latching (1) = When in **MANUAL Mode**, the machine will actuate for as long as the dispense actuation signal is received. When the dispense actuation is not received the machine will continue to actuate. When the next dispense actuation signal is received the machine will stop actuating.

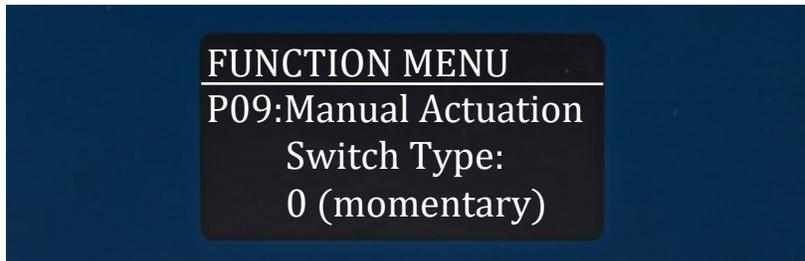


Fig. 13: Manual Actuation Switch Type

1	When the Manual Actuation Switch Type page is displayed, press the  button to enter the setting page for the Manual Actuation Switch Type function. 0 = momentary / 1 = latching
2	Press the  or  buttons to set the required switch type.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P10. Low Pressure Alarm

This function allows the user to enable the Low-Pressure Alarm function on the controller.

By enabling this function, it will not be possible to actuate the machine when the “Main Air In” pressure drops below the value set in the “Low Pressure Limit” function. If the low-pressure alarm is activated during a program cycle, the program cycle will be automatically stopped.

When the low-pressure alarm is activated, A red LED light will light up next to the text “ALARM” on the front panel of the controller, and the text “AL1” will flash on the top line of the home screen. Pin #6 of the I/O output circuit will also be activated.

The low-pressure alarm will automatically reset when the “Main Air In” pressure increases to above the value set in the “Low Pressure Limit” function.

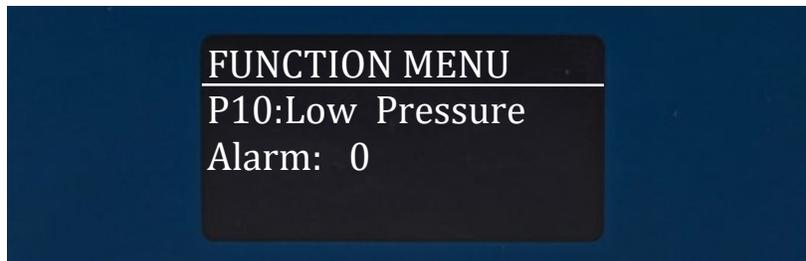


Fig. 14: Low Pressure Alarm

1	When the Low Pressure Alarm page is displayed, press the  button to enter the setting page for the Low Pressure Alarm function.
2	Press the  or  buttons to switch the Low Pressure Alarm On or Off. 0 = Off / 1 = On
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P11. Low Pressure Limit

This function allows the user to set the pressure value that the Low-Pressure Alarm will be activated at, if the Main Air Input pressure drops below the set value.

Main Air Input pressure below displayed value = Low Pressure Alarm ACTIVATED
Main Air input pressure at displayed value or higher = Low Pressure Alarm NOT ACTIVATED

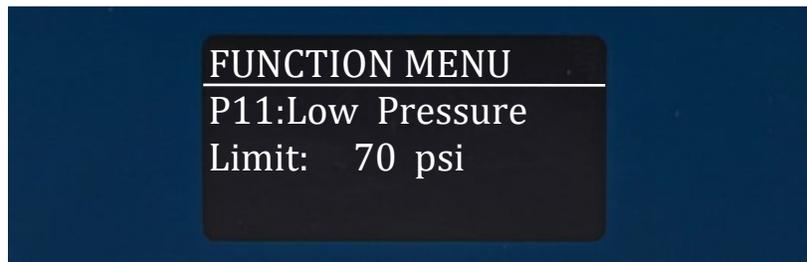


Fig. 15: Low Pressure Limit

1	When the Low-Pressure Limit page is displayed, press the  button to enter the setting page for the Low-Pressure Limit function.
2	Press the  or  buttons to set the required pressure limit value.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P13. P-Unit

This function allows the user to set the pressure unit of the “Main Air In” pressure between psi and bar, which is displayed in the top right corner of the home screen.

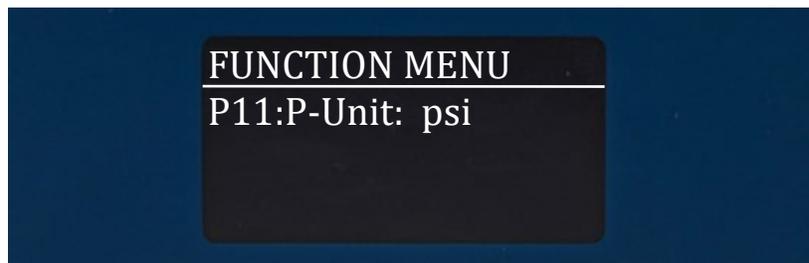


Fig. 16: P-Unit

1	When the P-Unit page is displayed, press the  button to enter the setting page for the P-Unit function.
2	Press the  or  buttons to set the required pressure unit. psi / bar
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P15. Lock Screen

This function allows the user to lock the machine controls preventing any adjustments from being inadvertently changed. The Function menu also becomes password protected.

When the Lock Screen is activated only the  button on the front panel of the machine will function. The  button will also become password protected.

To enter the Function menu when the Lock Screen is activated, press and hold the  button for 3 seconds. Use the  or  buttons to set the password number to “1985”. Then press the  button. (Note, the password number cannot be changed.)

When the Lock Screen is activated, the text “L” will be displayed in the top right corner of the home screen.

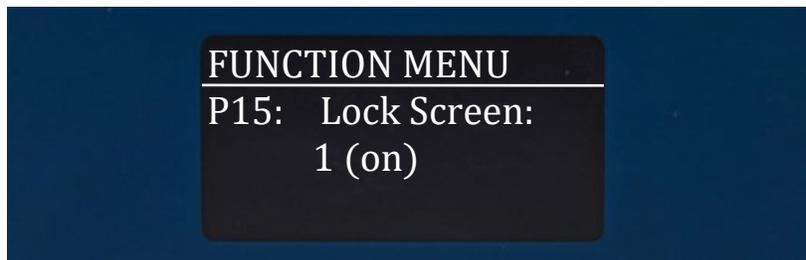


Fig. 17: Lock Screen

1	When the Lock Screen page is displayed, press the  button to enter the setting page for the Lock Screen function.
2	Press the  or  buttons to switch the Lock Screen On or Off. 0 = Off / 1 = On
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P17. Glue Alarm Time

This function allows the user to set the amount of time that the machine will operate for before an alarm signal is automatically activated preventing the machine from being actuated.

When set, the Glue Alarm Time will start after exiting the Function menu or when the machine has been actuated for the first time after it has been switched on. The home screen will display the Glue Alarm time (GA) and begin counting up. When the timer reaches the set time, A red LED light will light up next to the text “ALARM” on the front panel of the controller, and the text “GA” and “AL4” will flash on the home screen. Pin #6 of the I/O output circuit will also be activated.



The Glue Alarm Time is reset by pressing the  button.

This function is useful for sensitive (moisture, temperature, light, etc.) or 2 component materials, which have strict pot-life or working life dispensing requirements.



Fig. 18: Glue Alarm Time

1	When the Glue Alarm Time page is displayed, press the  button to enter the setting page for the Glue Alarm Time function.
2	Press the  or  buttons to set the required time in minutes.
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P20. Program Version

This function setting acts as an information page to confirm the firmware version installed onto the Timer Board.

It is not possible to access this function setting.



Fig. 19: Program Version

FUNCTION MENU

P21. Dispense Count

This function displays the total number of completed dispense cycles made by the machine.

This counter is resettable

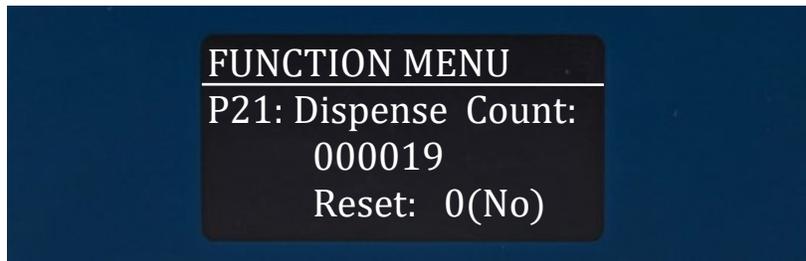


Fig. 20: Dispense Count

1	When the Dispense Count page is displayed, press the  button to enter the setting page for the Lock Screen function.
2	Press the  or  buttons to change the value to 1 (Yes) If the Dispense Count page is entered into by mistake and the Dispense Count value should not be reset, press the  or  buttons to change the value to 0 (No)
3	Press the  button to exit the selected Function setting. If 1 (Yes) has been selected the Dispense Count value will automatically reset to zero during this sequence.
4	Press and hold the  button for 3 seconds to exit the Function menu.

FUNCTION MENU

P22. Total Machine Cycles

This function displays the total number of completed dispense cycles made by the machine.

This counter is not resettable.

It is not possible to access this function setting.

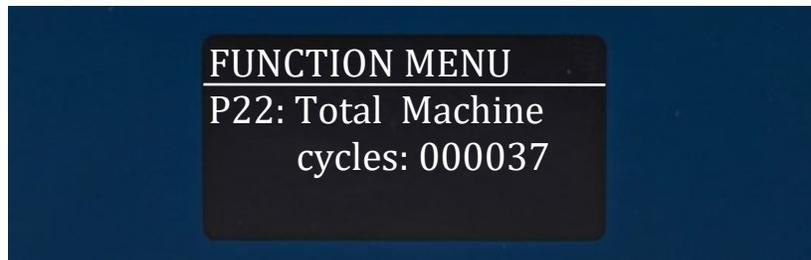


Fig. 21: Total Machine Cycles

FUNCTION MENU

P23. Total Dispense Time

This function displays the total number of minutes the machine has been actuated for.

Every dispensing cycle time from all modes is accumulated to the Dispense Time timer.

This counter is not resettable.

It is not possible to access this function setting.



Fig. 22: Total Dispense Time

FUNCTION MENU

P24. Language

This function allows the user to select the language displayed on the machine.

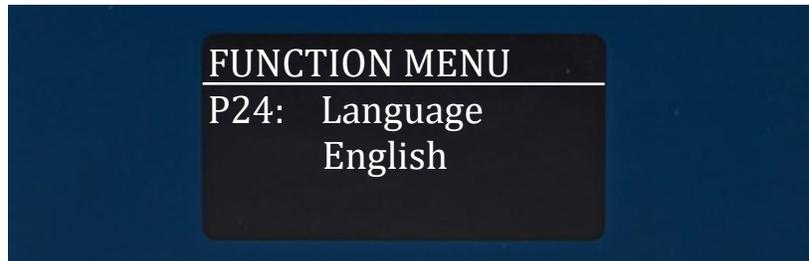
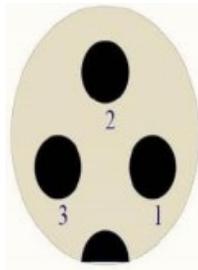


Fig. 23: Language

1	When the Language page is displayed, press the  button to enter the setting page for the Language function.
2	Press the  or  buttons to set the required language. English / Chinese
3	Press the  button to exit the selected Function setting.
4	Press and hold the  button for 3 seconds to exit the Function menu.

EXTERNAL MACHINE ACTUATION

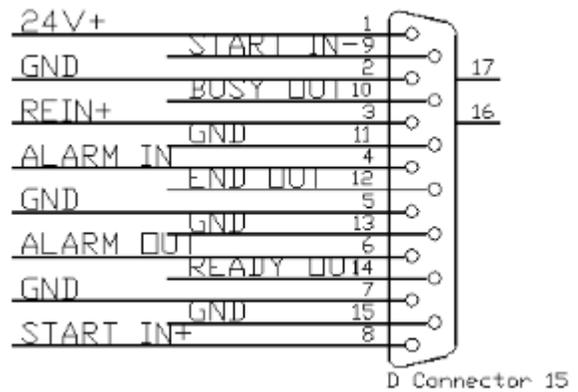
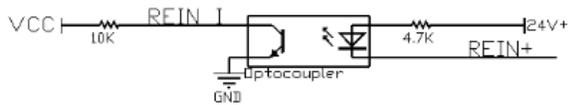
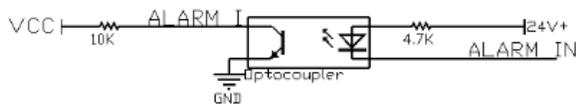
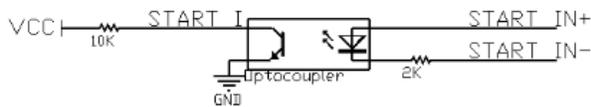
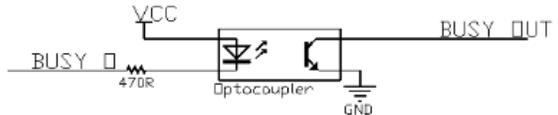
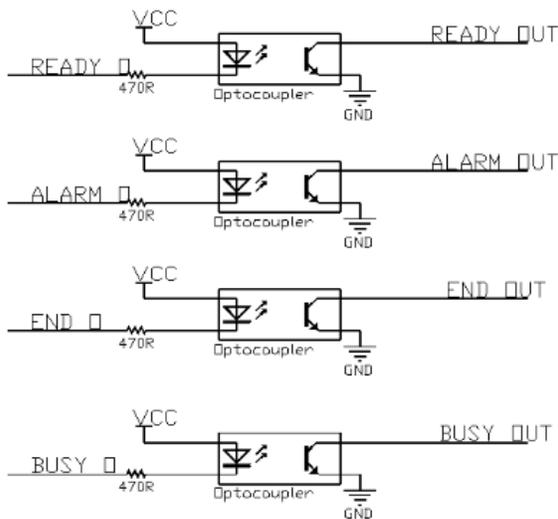


Pin#	Description
1	NOM (Normally Open)
2	COM (Common)
3	

FIG. 24: External Machine Actuation

Input	A dry contact closure (0 Volt) between the Input (Pin #1) and Common (Pin #2) pins will trigger a dispense signal.
	<p>PLEASE READ:</p> <p>Do not apply a voltage between the input pin (1) and the common pin (2). Doing so will damage the timer board and void all warranty conditions.</p>

I/O Specifications – I/O Connector



Pin #	Function
1	24V+ internal power OUT
2	GND internal ground
3	Contact Closure Initialize IN
4	Alarm IN
5	GND internal ground
6	Alarm OUT
7	GND internal ground
8	Start IN 24V+
9	Start IN GND (0V)
10	Machine Busy OUT
11	GND internal ground
12	End of Cycle OUT
13	GND internal ground
14	Machine Ready OUT
15	GND internal ground

FIG. 25: Input / Output Schematic

OUTPUT SIGNALS

Output Type: Open Collector Optocoupler (NPN)

Output Power: Output signals are able to sink a maximum of 50 milliamps per pin.

Output Function: When the output signal is activated, the circuit between the output pin (pin #6, 10, 12 & 14) and the GND (pin #7, 11, 13 & 15) is completed.

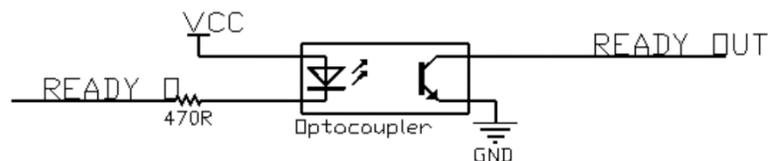


FIG. 26: Example of I/O output port driving



PLEASE READ: If an inductive load (such as a relay) is connected to an output signal, be sure to install a diode as shown to prevent damage to the output optocoupler.

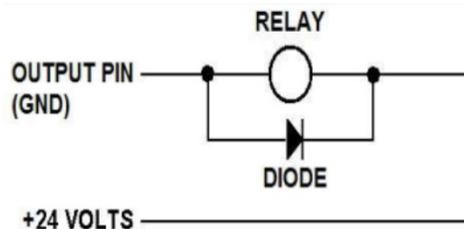


FIG. 27: Installation of Diode

INPUT SIGNALS

Input Type: Opto-coupler

Input Power:

- Pin #3 and #4 are an externally driven dry-contact voltage free contact closure circuit (I.E. Switch or Relay).
- Pin #8 is an externally driven +24V DC voltage-initiated circuit.

Input Function (pin #3, #4):

- To activate an input signal, pull the input pin (pin #3, #4) down to a GND pin (pin #2, #5).
- Input signals utilize the controller internal power supply.

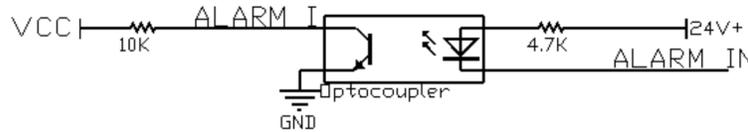


FIG. 28: Example of I/O input port driving (pin #3, #4)

PLEASE READ:



A dry contact closure between inputs (pin #3 or pin #4) and any ground will trigger an input signal. DO NOT apply a voltage to input pin #3 or pin #4 and ground. Doing so will damage the internal timer board and void all warranty conditions.

Input Function (pin #8):

- To actuate the machine from an external device using a voltage signal (24V+),
 - o connect input pin “START IN +” (pin #8) to an external power supply (24V+).
 - o Connect input pin “START IN -” (pin #9) to an external GND (0V)

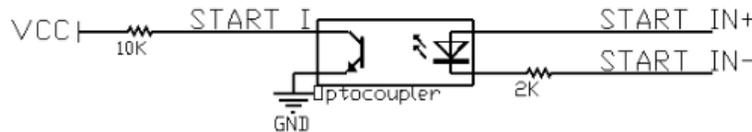


FIG. 29: Example of I/O input port driving (pin #8)

OUTPUT SIGNAL DEFINITION

Pin #6 Alarm Out (Output):

- The signal will be activated if any one of the below conditions occur.
 - o If the “Alarm In” input circuit has been activated.
 - o If the “Low Pressure Alarm” has been activated due to the “Main Air In” pressure falling below the value set in the function setting.
- A red LED light will light up next to the text “ALARM” on the front panel of the controller, to identify the “Alarm Out” signal has been activated.
- If the “Alarm Out” signal is activated during a program cycle, the program cycle will be automatically stopped.
- It will also not be possible to actuate a new program cycle until the “Alarm Out” signal has been switched off.
- The signal will remain on until the above stated conditions do not occur, whereby the signal and red LED light next to the text “ALARM” on the front panel of the controller, will then be automatically switched off.

Pin #10 Machine Busy (Output):

- When the machine is actuating a program cycle (i.e. Dispense valve is dispensing fluid) the signal will be activated.
- When the machine has completed the program cycle (i.e. Dispense valve is not dispensing fluid) the signal will not be activated.

Pin #12 End of Cycle (Output):

- When the machine has completed a program cycle (i.e. Dispense valve has stopped dispensing fluid) the signal will be momentarily activated for a period of 10ms.

Pin #14 Machine Ready (Output):

- After machine power on, the signal will be activated.
- The signal will automatically switch off if any of the below conditions occur.
 - o “Machine Busy” Output signal activated.
 - o “End of Cycle” Output signal activated.
 - o “Alarm Out” Output signal activated
- The signal will be re-activated automatically when all of the above conditions do not occur.

INPUT SIGNAL DEFINITION

Pin #3 CC Initialize (Input):

- When connected to a GND pin the “CC Initialize” signal will be activated, resulting in the machine program cycle being actuated.
 - o When in “MANUAL” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) until “CC Initialize” signal is removed from the GND pin.
 - o When in “TIMED” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) until the set dispense time on the machine has been reached.
 - o When in “CYCLE” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) in a looping cycle until “CC Initialize” signal is removed from the GND pin and then re-applied.



- A green LED light will light up below the  button on the front panel of the controller, to identify the machine is actuating a program cycle (i.e. Dispense valve is dispensing fluid).

Pin #4 Alarm In (Input):

- When connected to a GND pin the “Alarm In” signal will be activated, resulting in the “Alarm Out” signal (Pin #6) being activated automatically.

Pin #8 Voltage Start IN+ (Input):

- When connected to an external 24V+ power supply, the “Voltage Initialize” signal will be activated, resulting in the machine program cycle being actuated.
 - o When in “MANUAL” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) until signal is removed.
 - o When in “TIMED” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) until the set dispense time on the machine has been reached.
 - o When in “CYCLE” mode, the machine will continue to be actuated (i.e. Dispense valve is dispensing fluid) in a looping cycle until signal is removed and then re-applied.

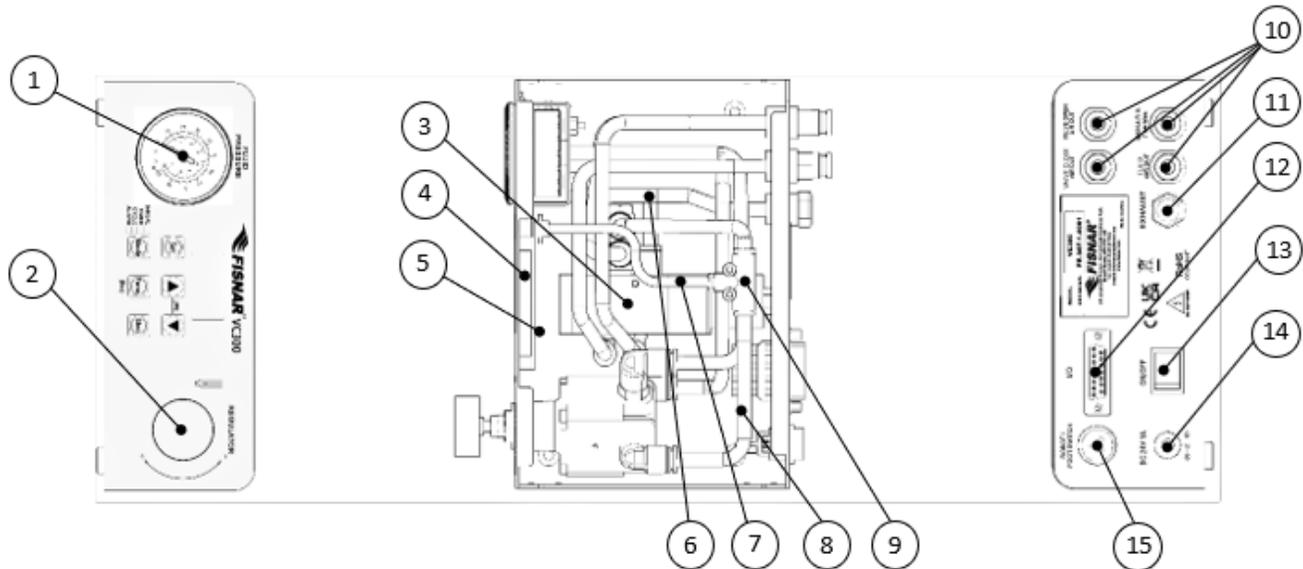


- A green LED light will light up below the  button on the front panel of the controller, to identify the machine is actuating a program cycle (i.e. Dispense valve is dispensing fluid).



PLEASE READ: For the “Voltage Start IN+” signal to work correctly, “Start IN-” (pin #9) must be connected to an external GND (0V)

SPARE PARTS LIST



Ref.	Item Number	Description
1	5601902	Pressure Gauge (inc. fittings)
2	5601956	Pressure Regulator (inc. fittings)
3	5601962	Solenoid Module (inc. fittings)
4	5601958-VC300	Timer Board
5	5601963	Solenoid Connector Assembly
6	5601878	Barbed Tee Fitting – 6mm
7	5601966-10FT	Ø4mm Transparent PU Tubing (10ft)
8	5601967-10FT	Ø6mm Transparent PU Tubing (10ft)
9	5601965	Push-in Tee Fitting – 4mm to 6mm
10	5601940	Air In/Out Module
11	5601960	Exhaust Outlet Module
12	5601961	I/O Connector Assembly
13	5601908	On/Off Switch Assembly
14	5601909	Power Input Connector Assembly
15	5601910	Foot Switch Connector Assembly
16*	5601911	Power Adaptor (Input: 100 – 240 VAC / Output: 24 VDC)
17*	5601888	Foot Pedal
18*	51495K173	1/4" OD Push to Connect Air Plug
19*	5779K712	Push To Connect Air Fitting 1/4" Stem OD X 5/32" Tube OD

* Item Not Shown

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Display does not light up	<ul style="list-style-type: none"> - Power input failure - Timer board failure 	<ul style="list-style-type: none"> - Disconnect power supply. Remove cover and check for loose or damage wires inside machine. - Check / Replace power supply (#5601911) - Check / Replace on/off switch assembly (#5601908) - Replace timer board (#5601958-VC300)
No air pressure being supplied to Operating Air opening or closing connection of dispense valve, but clicking sound heard from within unit.	<ul style="list-style-type: none"> - Lack of air pressure - Pneumatic tubing not correctly fitted 	<ul style="list-style-type: none"> - Check Air Supply to “Main Air In” port on back of machine. - Check pneumatic tubing is fully inserted into push-in fittings on back of machine. - Increase air pressure supply
Loud “hissing” noise of leaking air heard inside machine	<ul style="list-style-type: none"> - Loose / damage pneumatic tubing 	<ul style="list-style-type: none"> - Disconnect power supply. Remove cover and identify pneumatic tubing / fitting at fault. Repair as needed
Loud “hissing” noise of leaking air heard at back of machine	<ul style="list-style-type: none"> - “Main Air Out” port plug not fitted 	<ul style="list-style-type: none"> - Insert air plug (#51495K173) into “Main Air Out” port on back of machine
No air pressure being supplied to Operating Air opening or closing connection of dispense valve. And no clicking sound heard from inside the machine when actuated	<ul style="list-style-type: none"> - Defective solenoid 	<ul style="list-style-type: none"> - Replace solenoid (#5601962)

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Air pressure being supplied to fluid feed system but gauge value reading “0psi”	<ul style="list-style-type: none"> - Defective pressure gauge 	<ul style="list-style-type: none"> - Replace pressure gauge (#5601902)
No air pressure being supplied to dispense valve and pressure gauge value reading “0psi”	<ul style="list-style-type: none"> - Defective pressure regulator 	<ul style="list-style-type: none"> - Replace pressure regulator (#5601956)
Machine will not actuate	<ul style="list-style-type: none"> - Timer board failure 	<ul style="list-style-type: none"> - Disconnect power supply. Remove cover and check for loose or damage wires inside machine. - Replace timer board (#5601958-VC300)
Machine will not actuate when the foot switch is pressed (only)	<ul style="list-style-type: none"> - Defective foot switch 	<ul style="list-style-type: none"> - Disconnect power supply. Remove cover and check for loose or damage wires inside machine. - Replace foot switch (#5601888)
Machine will not actuate via I/O circuit (only)	<ul style="list-style-type: none"> - Timer board failure 	<ul style="list-style-type: none"> - Check external wires connected to I/O connector have been correctly wired as per operating manual. - Disconnect power supply. Remove cover and check for loose or damage wires inside machine. - Replace timer board (#5601958-VC300)

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LIMITED WARRANTY

Manufacturer warrants this product to the original purchaser for a period of one (1) year from the date of purchase to be free from defects in material and workmanship, but not against damages caused by misuse, negligence, accident, faulty installation, abrasion, corrosion or by not operating in accordance with factory recommendations and instructions. Manufacturer will repair or replace (at factory's option), free of charge, any component of the equipment thus found to be defective, upon prepaid return of the equipment to the factory during the warranty period of the equipment. In no event shall any liability or obligation of Manufacturer arising from this warranty exceed the purchase price of the equipment. **This warranty is valid only when 5 micron filtered air is used.** The manufacturer's written liability, as stated herein, cannot be altered or enlarged except by a written statement signed by an officer of the company. In no event shall manufacturer be liable for consequential or incidental damages. A return authorization is required prior to shipping a defective machine to the factory.

Manufacturer reserves the right to make engineering or product modifications without notice.



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