



F1300N.2 Rotary Table Operating Manual

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OVERVIEW



FIG. 1: Model F1300N.2 Rotary Table

The F1300N.2 rotary table provides an efficient method of dispensing a circular pattern on areas that are difficult to access. The tilting Z-axis allows for controlled rotary dispensing at a fixed angle.

Used for dispensing adhesives, silicones, greases and lubricants, the F1300N is fully adjustable in rotation speed, circle diameter, and dispensing time. Dispense from barrels, cartridges, or valves mounted on the Z-axis.

The Z-axis tilt is easily adjusted to dispense either on a vertical wall within a cylindrical part or an outside wall. The system is fully programmable to control dispense delay, degree of rotation, and wait period before cycling.

Three Operation Modes

Standard mode – For dispensing a continuous arc or circle diameter

Pulse mode – For dispensing multiples arcs over a defined circle diameter

Index mode – For dispensing in multiple fixed positions within a arc or circle diameter

Nine programmable memory slots

Adjustable fluid output pressure (0-100psi) for setting and controlling dispense pressure inside fluid syringe barrel or cartridge. Alternatively used for actuating connected pneumatic dispense valve.

Touch screen LCD display for easy setup and operation

Fully programmable for accurate dispense results












7 channel I/O circuit for external control

Password-protected operator lock-out mode

Industry standard push-in fitting ensure easy system installation and integration into workplace environments

SAFETY




General Precautions

| | |
|---|--|
|  | <i>Do not operate the machine in excess of its maximum ratings / settings.</i> |
|  | <i>Make sure the machine is connected to a properly grounded power source.</i> |
|  | <i>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.</i> |
|  | <i>If Cyanoacrylates adhesives or other moisture sensitive fluids are being used, an inline coalescing filter (item number 560779C) must be installed to maintain dispensing system performance.</i> |
|  | <i>The fluid being dispensed may be toxic and / or hazardous. Refer to the Material Safety Data Sheet for proper handling and safety precautions.</i> |
|  | <i>Do not smoke or use near an open flame when flammable materials are being dispensed.</i> |
|  | <i>Do not expose the machine directly to sunlight.</i> |
|  | <i>Avoid cleaning the machine with aggressive solvents – neutral detergents are preferred.</i> |
|  | <i>Do not touch any moving parts while the rotary table is running.</i> |
|  | <i>Loading and unloading of parts must be done when the rotary table is not moving.</i> |
|  | <i>Changing of tooling must be done with the power source disconnected.</i> |

EU & UK Safety Requirement

To meet the conformity requirements of the European Community (CE) Machinery Safety Directive (2006/42/EC) or UK (UKCA) Machinery (Safety) Regulations 2008 this machine must be placed in an appropriate safety enclosure prior to production use.

F1300N.2 Malfunction

| | |
|---|---|
|  | <i>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.</i> |
|  | <i>Isolate pneumatic air supply to the controller.</i> |
|  | <i>Identify the cause of machine malfunction and fix accordingly before switching back on.</i> |

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.



Do not use any components with the machine other than Fisnar authorized components.



Do not use incompatible materials.



***Do not make any modifications to the machine.
All repairs are to be done using Fisnar specified spare parts.***



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



Do not drop or spill foreign objects or material such as screws or liquids into the rotary table.



Do not operate the machine where electrical noise is present.

Fire Prevention

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



Assess your surroundings and the location of the nearest fire extinguisher and Emergency Exit.



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



Immediately disconnect power if any sparking or smoke appears.



Do not expose the machine directly to sunlight.

Maintenance

The F1300N.2 is generally a maintenance free machine. However, to ensure smooth operation please follow the below instructions.



Only use non-woven cleaners on the machine.



Periodically inspect pneumatic and fluid tubing for signs of fatigue and replace as necessary



Ensure that compressed air supply to the machine is clean and moisture free.



Periodically check electrical connections and pneumatic fittings are secure.

SPECIFICATIONS

| | |
|------------------------------|---|
| Dimensions (W x D x H): | 13.8" x 19" x 22.6" (350 x 482 x 574 mm) |
| Weight: | 24.3 lbs (11 kg) |
| Input AC to Power Supply: | 100 – 240 VAC, 50 / 60 Hz |
| Output DC from Power Supply: | 24 VDC – 1 Amp |
| Rotation Speed: | 0 - 60rpm |
| Work Load: | 2 kg (4.4 lb) |
| Tool Load: | 10 kg (22 lb) |
| Working Area (Diameter): | 300mm (12") |
| Vertical Travel | 100mm (4") |
| Air Input: | 70 - 100 psi (5 - 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 |
|----------------------|---|----------|
| A23EMOT-EA10681V240 | Power Adaptor (Input: 100–240 VAC / Output: 24 VDC) | 1 |
| 5601888 | Foot Pedal Switch | 1 |
| 0603-25400002 | 30/55cc Barrel Holder Assembly | 1 |
| W122000006 | 8mm OD x 6mm ID Polyurethane Tubing – 10FT | 1 |
| W124000081 | Straight 6mm OD Push Connector x 1/4" NPT Male | 1 |
| A09WP-1705-1-W24 | Aux. Dispenser Cable Assy. – 2 metres | 1 |
| A10FBMH-6FR | Safety Connector Socket | 1 |
| 1705-15910002 | Internal Safety Relay Wiring Kit | 1 |
| W124000120 | 6mm OD Push to Connect Air Plug | 3 |
| W124000185 | Push In Fitting 6mm Stem OD X 4mm Tube OD | 1 |
| W124000194 | Push In Fitting 8mm Stem OD X 6mm Tube OD | 1 |
| A10D-TYPE9MHP2-9CASE | 9 Pin D-Sub EXT. Connector Socket | 1 |
| A10D-TYPE9MHP2-SHORT | 9 Pin D-Sub EXT. Shorted Connector Socket | 1 |
| A10D-SUB15FR-15CASER | 15 Pin D-Sub I/O Connector Socket | 1 |



FIG. 2: External Controls Overview - Front

| Item | Illustration | Item | Illustration | Item | Illustration |
|------|-----------------------|------|--------------------|------|------------------------|
| 1 | Purge Button | 4 | Reset Button | 7 | HMI Display |
| 2 | Vacuum Control Knob | 5 | Start Button | 8 | Air Pressure Regulator |
| 3 | Emergency Stop Button | 6 | Air Pressure Gauge | 9 | Start Button |

| | | |
|----|--------------------------------|--|
| 1. | Purge Button | <p>Press the purge button to manually dispense fluid material from the syringe barrel or cartridge.</p> <p>Or, if using a pneumatic dispense valve, press the purge button to manually actuate the dispense valve.</p> |
| 2. | Suck Back Control | <p>This feature is only needed if dispensing a low viscosity fluid directly from a syringe barrel (I.E. syringe barrel adapter assembly is connected directly to the “Dispense Air Out” port (Fig.4.9) on the back of the machine).</p> <p>It will keep a negative air pressure in the syringe barrel other than when carrying out the “Rotation Delay” and “Dispense Angle” phase of the program cycle, to prevent low viscosity fluids dripping from the dispense tip in between program cycles.</p> |
| 3. | Emergency Stop | <p>Press the emergency stop button to immediately stop the machine and cease a program cycle.</p> |
| 4. | Reset Button | <p>If the emergency stop button is pressed, it will be necessary to press the reset button after releasing the emergency stop button before the machine can be actuated again.</p> |
| 5. | Start Button | <p>Press both start buttons (5) and (9) simultaneously to actuate the machine and begin the program cycle.</p> |
| 6. | Dispense Pressure Gauge | <p>Shows the amount of pressure being used to pressurize the fluid material in the syringe barrel or cartridge. Or, if using a pneumatic dispense valve, then this will show the amount of pressure being used to actuate the valve during the program cycle.</p> <p>The pressure gauge value is set and controlled by the pressure regulator (8).</p> <p>The set pressure is fed out of the back of the machine from the “Dispense Air Out” port (FIG.4.9) only during the “Rotation Delay” and “Dispense Angle” phase of the program cycle. Or when the “Purge” button (1) is pressed.</p> |

| | | |
|--|----------------------------------|---|
| <p>7.</p> | <p>HMI Display</p> | <p>The HMI display is used to,</p> <ul style="list-style-type: none"> - Enter the parameters of the program cycle. - Manually actuate individual components of the machine. - Adjust machine settings. <p>For full information on the HMI Display functions please refer to “HMI Controls” section.</p> |
| <p>8.</p> | <p>Pressure Regulator</p> | <p>Adjusts and sets the amount of pressure being used to pressurize the fluid material in the syringe barrel or cartridge. Or, if using a pneumatic dispense valve, then this will set the amount of pressure being used to actuate the valve during the program cycle.</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> |
| <p>9.</p> | <p>Start Button</p> | <p>Press both start buttons (5) and (9) simultaneously to actuate the machine and begin the program cycle.</p> |
| Empty cell for the rest of the table structure | | |

EXTERNAL CONTROLS

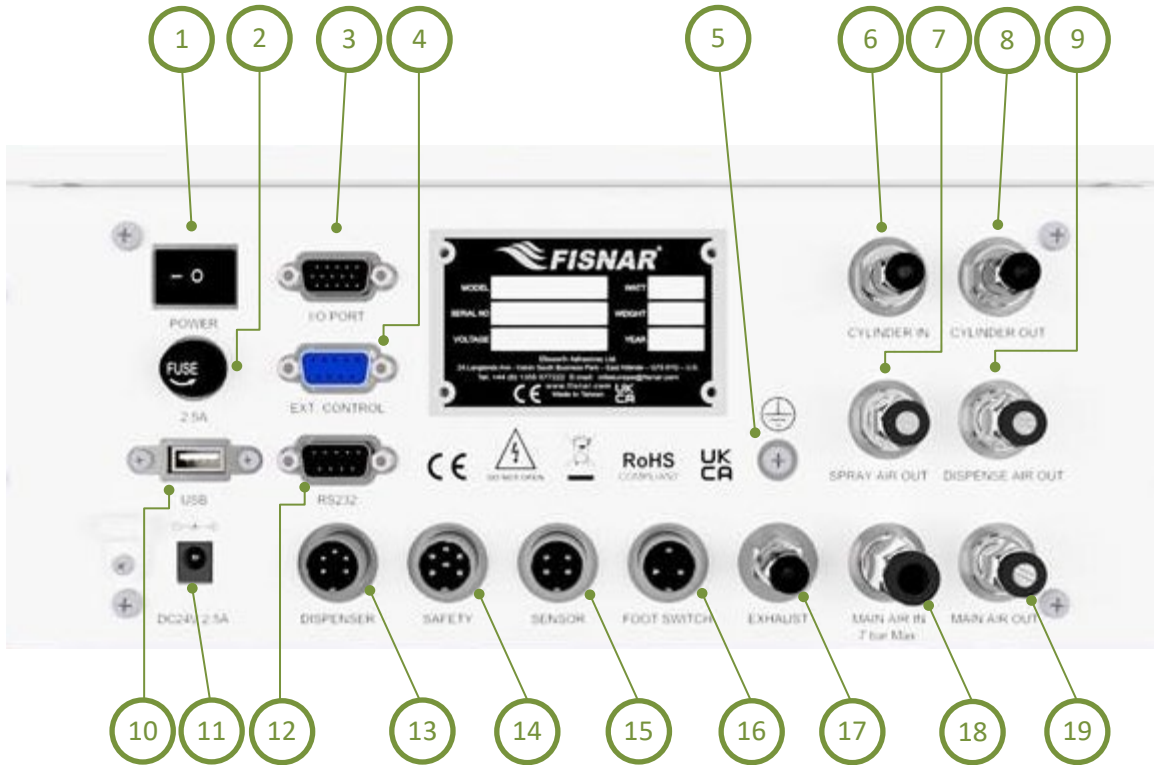


FIG. 3: External Controls Overview - Back

| Item | Illustration | Item | Illustration | Item | Illustration |
|------|------------------------|------|-----------------------|------|-----------------------|
| 1 | On / Off Switch | 8 | Cylinder Out Port | 15 | Sensor Connector |
| 2 | Fuse | 9 | Dispense Air Out Port | 16 | Foot Switch Connector |
| 3 | I/O Connector | 10 | USB Connector | 17 | Exhaust Port |
| 4 | Ext. Control Connector | 11 | Power Input Connector | 18 | Main Air In Port |
| 5 | Ground Connection | 12 | RS232 Connector | 19 | Main Air Out Port |
| 6 | Cylinder In Port | 13 | Dispenser Connector | | |
| 7 | Spray Air Out Port | 14 | Safety Connector | | |

| | | |
|----|------------------------------------|--|
| 1. | On / Off Switch | Used to switch the machine on or off. |
| 2. | Fuse | A 2.5A fuse is located here to protect the internal electrical circuit. |
| 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. | Ext. Control Connector | Used in applications where external start and stop controls will be used and/or when the machine is placed inside a safety enclosure and connected to an external safety circuit with an externally fitted safety relay. The optional remote operation box (F1300AKIT-EXTBOX or F1300AKIT-EXTBOX-SR) can be used in the instances described above. If this connection is not utilized, the shorted EXT. Control plug <u>MUST</u> be inserted. |
| 5. | Ground connection | A safe and secure machine grounding point; to be used when the power input adapter is not connected directly to a grounding point. |
| 6. | Cylinder In Port (4mm OD) | The pneumatic tubing labelled “Cylinder In” from the z-axis drive assembly is connected here. |
| 7. | Spray Air Out Port (6mm OD) | If a spray valve is being used on the machine, then the atomizing air port of the spray valve is connected here. If this connection is not required for use, it is recommended that a blanking plug be inserted into this port. |
| 8. | Cylinder Out Port (4mm OD) | The pneumatic tubing labelled “Cylinder Out” from the z-axis drive assembly is connected here. |

| | | |
|-----|---------------------------------------|---|
| 9. | Dispense Air Out Port (6mm OD) | <p>At the start of a dispensing cycle, the regulated compressed air set by the pressure regulator and displayed on the pressure gauge on the machine will exit this port.</p> <p>It is used to pressurize and dispense the fluid material from the connected syringe barrel or cartridge during the program cycle. Or, if using a pneumatic dispense valve, then this will actuate the valve during the program cycle.</p> <p>If this connection is not required for use, due to an external dispense controller being used to control the dispensing of fluid material during the program cycle via the “Dispenser” connector port (13), it is recommended that the pressure regulator on the machine be set to 0psi and a blanking plug be inserted into this port.</p> |
| 10. | USB Connector | For internal use only. |
| 11. | Power Input Connector | The power input cable from the external power supply is connected here. |
| 12. | RS232 Connector | For internal use only. |
| 13 | Dispenser Connector | If an external dispense controller is being used to operate the dispense valve/syringe barrel mounted on the Rotary Table, the signal wires that actuate the dispense controller are to be connected here. |
| 14 | Safety Connector | <p>Used in applications when the machine is placed inside a safety enclosure and connected to a safety circuit with an internally fitted safety relay.</p> <p>The electrical wires of the safety light curtain or door switch are connected here when an internal safety relay (F1300AKIT-SR sold separately) is fitted inside the machine.</p> <p>If this connection is utilized, the shorted EXT. Control plug <u>MUST</u> be inserted into the EXT. Control connector (4) if it is not being utilized.</p> |
| 15. | Sensor Connector | The electrical connector from the z-axis drive assembly is connected here. |
| 16 | Foot Switch Connector | The foot pedal switch is connected here. |

| | | |
|-----|---------------------------------------|--|
| 17. | Exhaust Port (4mm OD) | At the end of a program cycle, pressurized air that was used to control the program cycle will be exhausted from this Exhaust Port. |
| 18. | Main Air In Port (8mm OD) | <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. A 5-micron air filter/regulator (item number 560567) is recommended to be used, to ensure the input air supply is clean and dry.</p> |
| 19. | Main Air Out Port (6mm OD) | <p>The compressed air pressure supplied into the “Main Air In” port will exit from this port.</p> <p>It can be used to connect to an auxiliary pressure regulator and gauge (560779SK) to allow the safe and constant pressurization of the connected fluid feed system (e.g. syringe barrel, cartridge, fluid reservoir etc.) in applications when a dispense valve is connected to the machine.</p> <p>If this connection is not required for use (e.g., a syringe barrel or cartridge is being directly dispensed from), then a blanking plug <u>MUST</u> be inserted into this port.</p> |

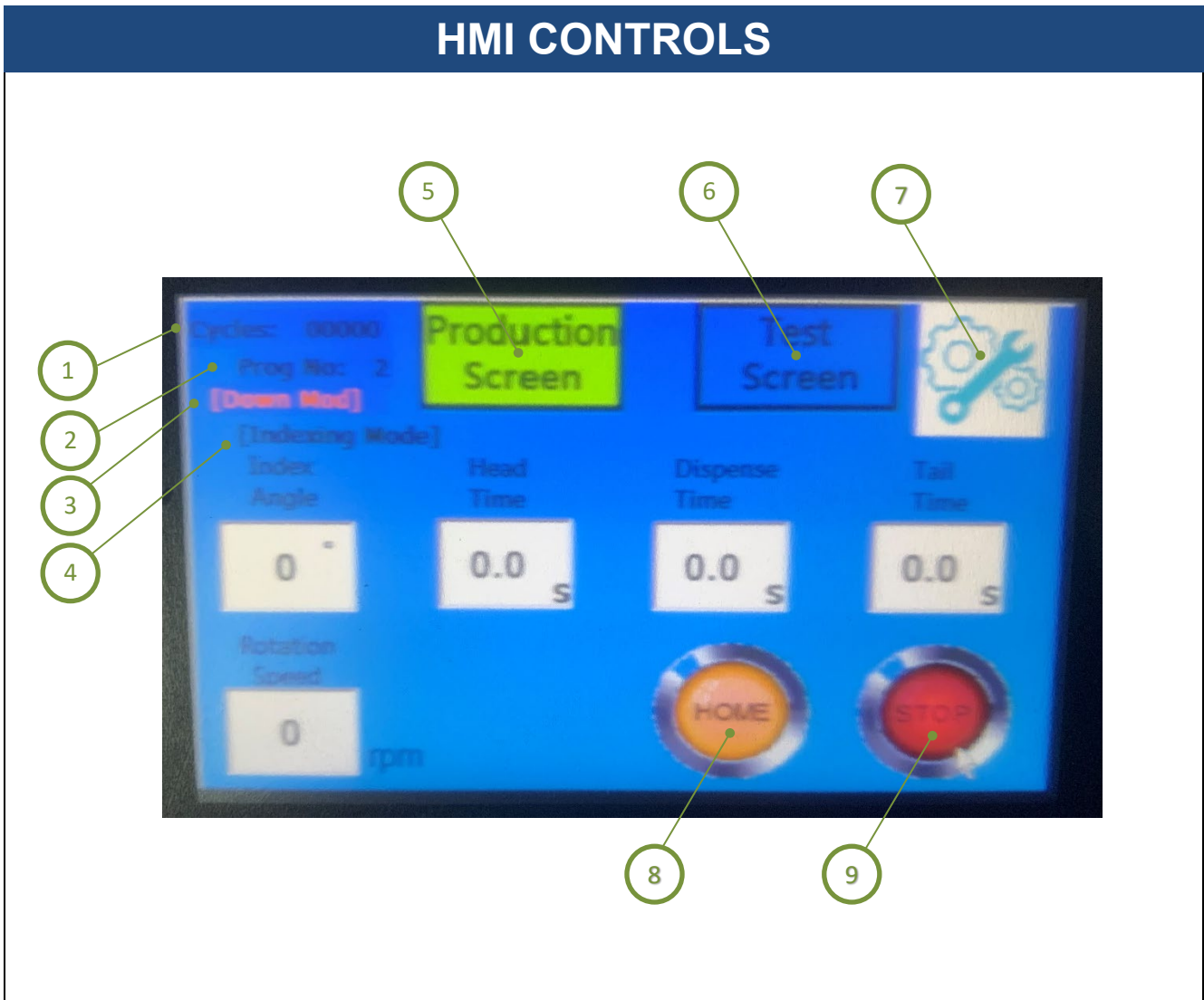

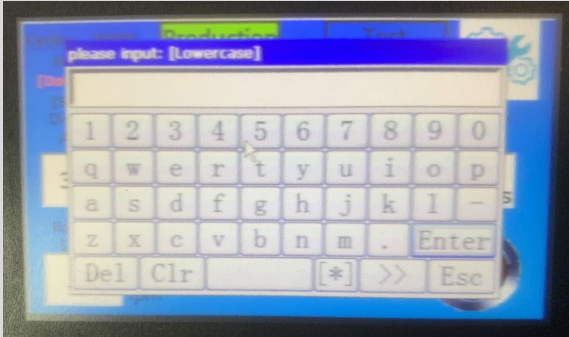
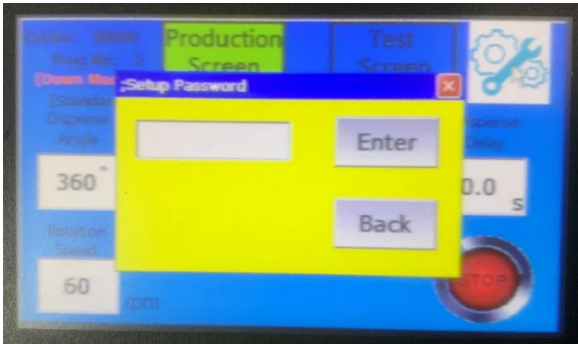
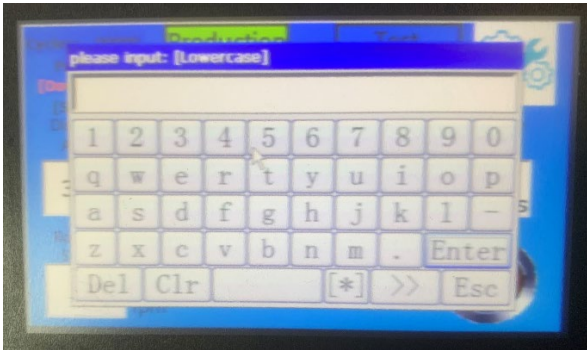


FIG. 4: HMI Controls Overview – Production Screen

| Item | Illustration | Item | Illustration | Item | Illustration |
|------|----------------|------|-------------------|------|------------------|
| 1 | Cycle Counter | 4 | Operation Mode | 7 | Machine Settings |
| 2 | Program Number | 5 | Production Screen | 8 | Home Button |
| 3 | Static Mode | 6 | Test Screen | 9 | Stop Button |

| | | |
|---|--------------------------|---|
| 1 | Cycle Counter | Displays the number of program cycles that have taken place since the cycle counter was last reset in the Machine Settings screen. |
| 2 | Program Number | Displays the program number the machine is executing. The program number is selected in the Machine Settings screen. |
| 3 | Static Mode | When the machine has been selected to run in “Static Mode” in the Machine Settings Screen, the text (Down Mod) will be displayed here. |
| 4 | Operation Mode | Displays the operation mode (standard, pulse or index) that the machine is operating in, which is selected in the Machine Settings screen |
| 5 | Production Screen | <p>Touch this button to display the Production Screen on the HMI.</p> <p>When the background is highlighted in green color, it confirms that the Production Screen is being displayed on the HMI.</p> |
| 6 | Test Screen | <p>Touch this button to display the Test Screen on the HMI.</p> <p>Before entering the Test screen a pop-up message will appear requesting for a password to be entered.</p>  <p>The machine is shipped without a password. Therefore, touch the “Enter” button to display the Test screen.</p> <p>If a password has been created by the user of the machine, touch the empty white box. A pop-up dialogue window will then automatically appear allowing the user to type in the password.</p> |

| | | |
|----------|--------------------------------|---|
| | |  <p>Once the password has been entered, touch the “Enter” button on the dialogue window. The pop-up dialogue window will then automatically disappear. The user can then touch the “Enter” button on the original pop-up message.</p> <p>When the background is highlighted in green color, it confirms that the Test Screen is being displayed on the HMI.</p> |
| <p>7</p> | <p>Machine Settings</p> | <p>Touch this button to display the Machine Settings Screen on the HMI.</p> <p>Before entering the machine setup screen a pop-up message will appear requesting for a password to be entered.</p>  <p>The machine is shipped without a password. Therefore, touch the “Enter” button to display the Machine Settings screen</p> <p>If a password has been created by the user of the machine, touch the empty white box. A pop up dialogue window will then automatically appear allowing the user to type in the password.</p> |

| | | |
|------------------------------------|---------------------------|--|
| | |  <p>Once the password has been entered touch the “Enter” button on the dialogue window. The pop-up dialogue window will then automatically disappear. The user can then touch the “Enter” button on the original pop-up message.</p> |
| <p>8</p> | <p>Home Button</p> | <p>Touch this button to send the motor to its “Home” position.</p> <p>The “Home” button is only displayed when the production mode has been set to “Pulse” or “Index” mode.</p> |
| <p>9</p> | <p>Stop Button</p> | <p>Touch this button to stop the machine in the middle of a program cycle.</p> |
| Empty space for additional content | | |

HMI CONTROLS

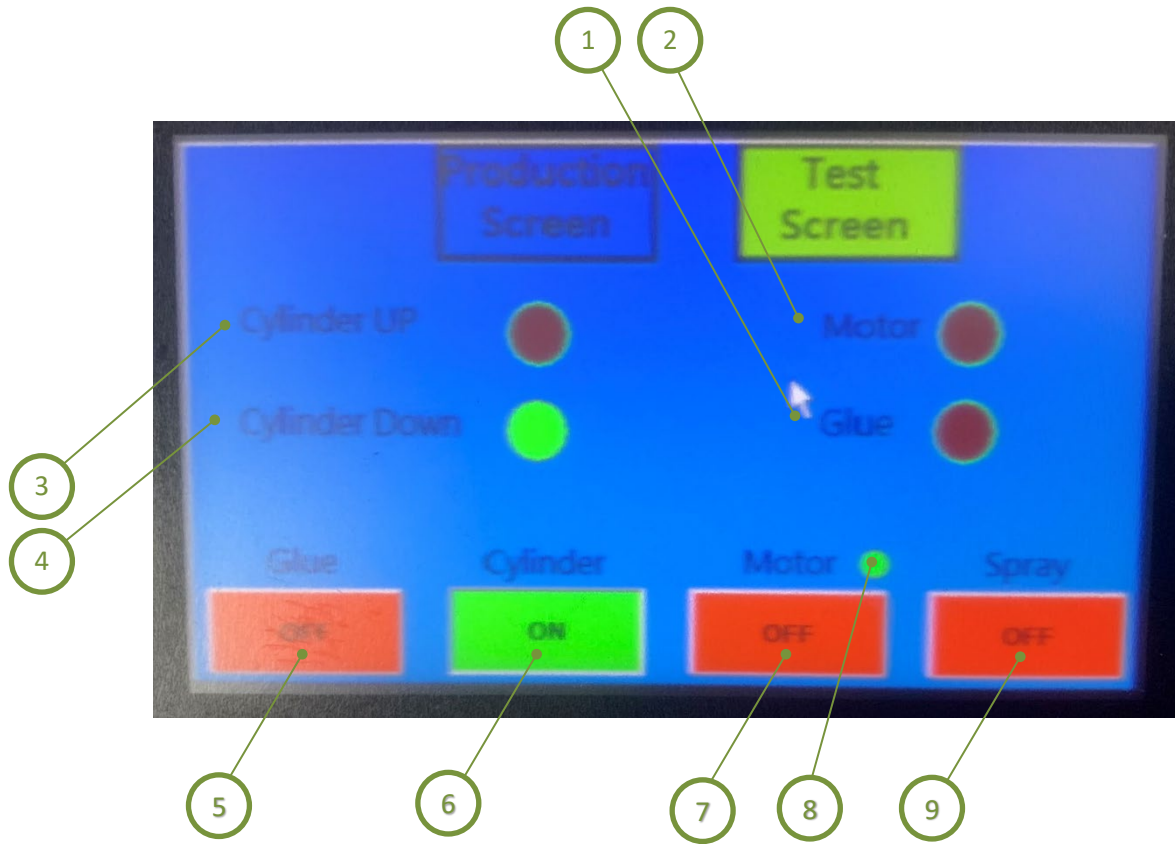


FIG. 5: HMI – Test Screen

| Item | Illustration | Item | Illustration | Item | Illustration |
|------|-------------------|------|---------------------|------|--------------|
| 1 | Glue Light | 4 | Cylinder Down Light | 7 | Motor Button |
| 2 | Motor Light | 5 | Glue Button | 8 | Home Light |
| 3 | Cylinder Up Light | 6 | Cylinder Button | 9 | Spray Button |

| | | |
|---|----------------------------|--|
| 1 | Glue Light | When the “Glue” button is in the “ON” position, the Glue Light will light up green. When the light is green in color the dispense solenoid is active and the machine is sending the signal to dispense fluid material from the syringe barrel/cartridge or actuate the connected dispense valve. |
| 2 | Motor Light | When the “Motor” button is in the “ON” position, the Motor Light will light up green. When the light is green in color the motor on the machine will be rotating at the speed (rpm) defined in the “Rotation Speed” value on the production screen. |
| 3 | Cylinder Up Light | When the “Cylinder” button is in the “OFF” position, the Cylinder UP light will light up green. When the light is green in color it confirms the Z-Axis drive cylinder is in the “UP” position. |
| 4 | Cylinder Down Light | When the “Cylinder” button is in the “ON” position, the Cylinder Down light will light up green. When the light is green in color it confirms the Z-Axis drive cylinder is in the “DOWN” position. |
| 5 | Glue Button | This button is used to actuate the dispense solenoid in the machine. When in the “ON” position the dispense solenoid is actuated to dispense fluid material from the syringe barrel/cartridge or actuate the connected dispense valve. |
| 6 | Cylinder Button | This button is used to actuate the Z-Axis drive cylinder on the machine. When in the “ON” position the Z-Axis cylinder will move to the “DOWN” position. When in the “OFF” position the Z-Axis cylinder will move to the “UP” position. |
| 7 | Motor Button | This button is used to actuate the motor on the machine. When in the “ON” position the motor will continuously rotate at the speed (rpm) defined in the “Rotation Speed” value on the production screen. |
| 8 | Motor Home Light | When the Motor is in its “HOME” position, the Motor Light will light up green. |
| 9 | Spray Button | This button is used to actuate the atomizing air solenoid in the machine. When in the “ON” position the atomizing air solenoid is actuated to supply compressed air to the atomizing air port of the connected spray valve. |

HMI CONTROLS

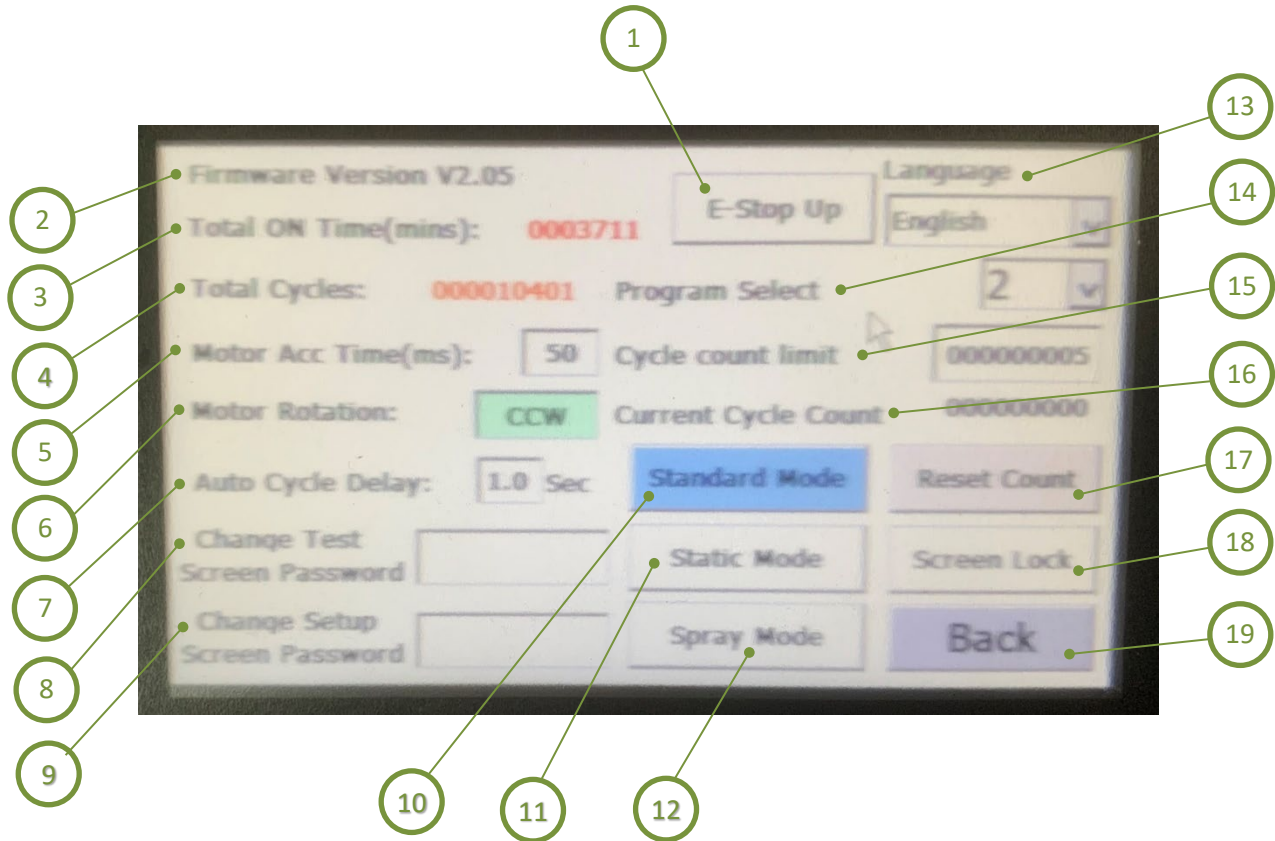


FIG. 6: HMI - Machine Settings

| Item | Illustration | Item | Illustration | Item | Illustration |
|------|------------------|------|-----------------------|------|---------------------|
| 1 | E-Stop Condition | 8 | Change Test Password | 15 | Cycle Count Limit |
| 2 | Firmware Version | 9 | Change Setup Password | 16 | Current Cycle Count |
| 3 | Total ON Time | 10 | Operation Mode | 17 | Reset Count |
| 4 | Total Cycles | 11 | Static Mode | 18 | Screen Lock |
| 5 | Motor Acc. Time | 12 | Spray Mode | 19 | Back |
| 6 | Motor Rotation | 13 | Language | | |
| 7 | Auto Cycle Delay | 14 | Program Select | | |

| | | |
|---|-------------------------|--|
| 1 | E-Stop Condition | <p>This button is used to confirm the behavior of the Z-Axis drive cylinder when the E-Stop button is pressed as described below.</p> <p><u>E-Stop Up button highlighted with a green color background</u> If the E-stop button is pressed while the Z-Axis is moving to the “DOWN” position or is in the “DOWN” position, it will automatically return back to the UP position.</p> <p><u>E-Stop Up button not highlighted. Background color is gray.</u> If the E-stop button is pressed while the Z-Axis is moving to the “DOWN” position or is in the down position, it will continue to or remain in the “DOWN” position.</p> |
| 2 | Firmware Version | Displays the firmware version installed onto the machine. |
| 3 | Total ON Time | Displays the total number of minutes the machine has been switched on for. This counter is not resettable. |
| 4 | Total Cycles | Displays the total number of completed cycles made by the machine. This counter is not resettable. |
| 5 | Motor Acc. Time | <p>Sets the time it takes for the motor to reach the RPM value set in the production screen. The time is set in milliseconds. The higher the value the longer the time of reaching the set RPM. When dispensing onto a heavy workpiece a longer time is needed to prevent damage to the motor. Times can be set from 50ms – 999ms.</p> <p>The Default value is set at 50ms.</p> |
| 6 | Motor Rotation | <p>Sets the rotation of the motor on the machine.</p> <p style="text-align: center;">CW = Clockwise CCW = Counterclockwise</p> |
| 7 | Auto Cycle Delay | <p>Auto cycle is enabled as soon as a value greater than “0” seconds is entered.</p> <p>The time entered is the delay time between one cycle ending and the next one automatically starting.</p> <p>When Auto Cycle Delay is set at 0.0 seconds Auto cycle is disabled.</p> |

| | | |
|----|------------------------------|--|
| 8 | Change Test Password | <p>Sets a password to access the “TEST” screen.</p> <p>The machine is shipped without a password.</p> <p>The master override password is 347627.</p> |
| 9 | Change Setup Password | <p>Sets a password to access the “Machine Settings” screen.</p> <p>The machine is shipped without a password.</p> <p>The master override password is 347627.</p> |
| 10 | Operation Mode | <p>Sets the mode of operation that the machine will operate in.</p> <p>Select between,</p> <ul style="list-style-type: none"> - Standard Mode - Pulse Mode - Index Mode - |
| 11 | Static Mode | <p>When activated, the Z-Axis drive cylinder will move to the “DOWN” position and allow a program cycle to be completed with the Z-Axis drive cylinder remaining in the “DOWN” position when the program cycle has been completed.</p> |
| 12 | Spray Mode | <p>This is to be activated when a pneumatic spray valve is connected directly to the machine.</p> <p>When activated, the pre-spray and post-spray time parameter values will be displayed on the “Production” screen.</p> <p>Note: Spray Mode can only be used when the Operation Mode of the machine is set to “Standard Mode”.</p> |
| 13 | Language | <p>Touch the drop-down list below the text “Language” to select the language displayed on the machine.</p> |
| 14 | Program Select | <p>Touch the drop-down list adjacent to the text “Program Select” to select the program number that the machine will execute and display parameter values of, on the “Production Screen” of the HMI.</p> |
| 15 | Cycle Count Limit | <p>Sets the maximum number of program cycles the machine will execute, before the “Cycle Count Limit” warning message is displayed.</p> |

| | | |
|-----------|-----------------------------------|---|
| <p>16</p> | <p>Current Cycle Count</p> | <p>Displays the total number of completed program cycles made by the machine. This counter is resettable.</p> |
| <p>17</p> | <p>Reset Count</p> | <p>Touch and hold down the “Reset Count” button for 2 seconds to reset the “Current Cycle Count” value to zero.</p> |
| <p>18</p> | <p>Screen Lock</p> | <p>When Screen Lock is activated, it will lock all machine parameters on the “Production” screen and prevent the operator from accessing the “Test” screen.</p> |
| <p>19</p> | <p>Back</p> | <p>Touch the “Back” button to exit the “Machine Setting” screen and return back to the “Production” screen on the HMI.</p> |

MACHINE SET UP

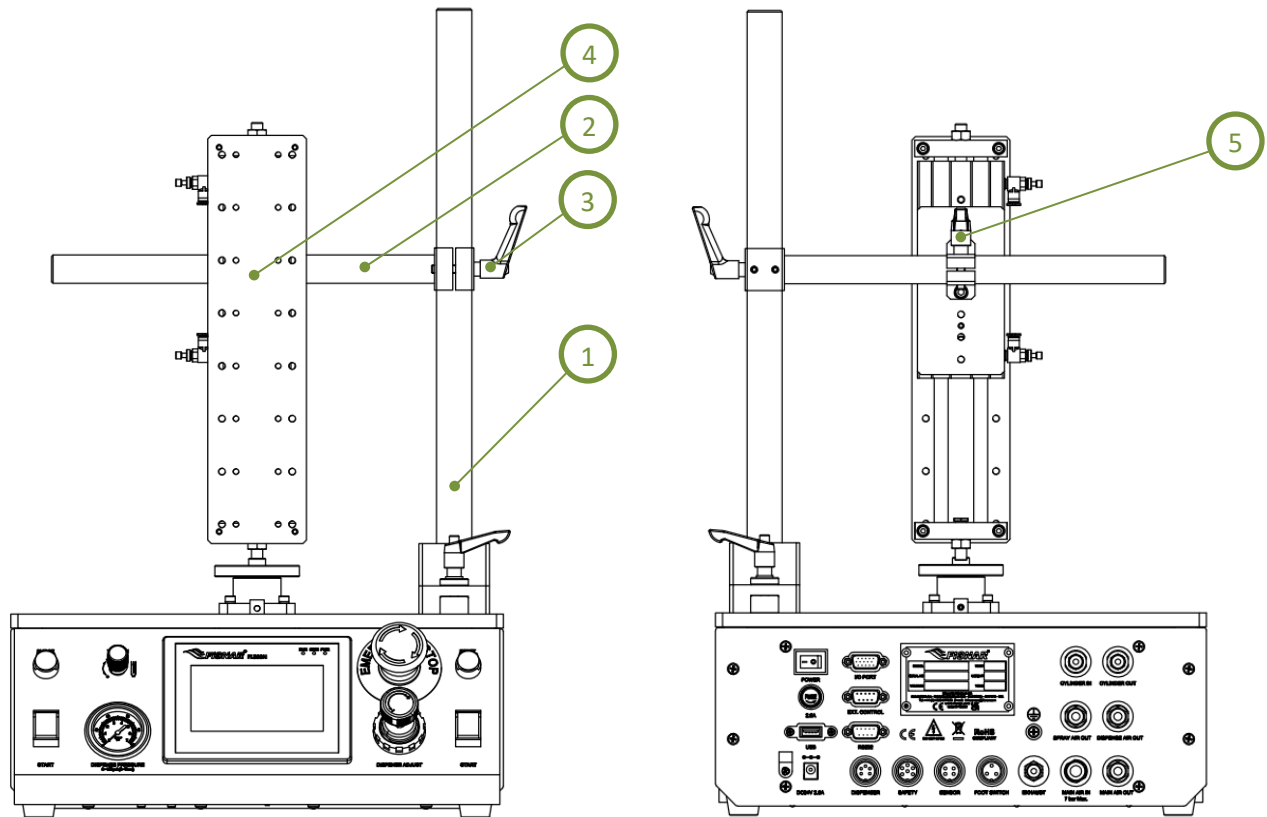


FIG. 7: Machine Setup

| | |
|-----------|---|
| <p>1.</p> | <p>To meet the conformity requirements of the European Community (CE) Machinery Safety Directive (2006/42/EC) or UK (UKCA) Machinery (Safety) Regulations 2008 place the machine into an appropriate safety enclosure.</p> <p><i>This step can be ignored if the machine is not required to conform to these standards.</i></p> |
| <p>2.</p> | <p>Fix the Vertical Rod assembly (1) onto the main worktable of the machine using the 4 off M5 socket head screws provided in the accessories bag.</p> |
| <p>3.</p> | <p>Slide the Horizontal Rod assembly (2) down and onto the Vertical Rod Assembly (1). Position initially at the top of the Vertical Rod Assembly (1). Use the clamping lever (3) to lock in position by rotating clockwise.</p> |
| <p>4.</p> | <p>Slide the Z-Axis drive assembly (4) over and onto the Horizontal Rod Assembly (2). Use the clamping lever (5) to lock in position by rotating clockwise.</p> |

| | |
|-----|---|
| 5. | Insert the electrical connector on the Z-Axis drive assembly into the “Safety” port on the back of the machine. |
| 6. | <p>Connect pneumatic tubing marked “Cylinder In” on the Z-Axis drive assembly to the “Cylinder In” port on the back of the machine.</p> <p>Connect pneumatic tubing marked “Cylinder Out” on the Z-Axis drive assembly to the “Cylinder Out” port on the back of the machine.</p> |
| 7. | <p>Connect the foot pedal switch to the port on the back of the machine.</p> <p>This step can be ignored if the controls on the front of the machine are being utilized or if a remote operation box is being used.</p> |
| 8. | <p>Connect the shorted EXT. Control plug provided in the accessories bag, into the “EXT Control” port on the back of the machine.</p> <p>This step can be ignored if a remote operation box is being used.</p> |
| 9. | Connect air hose from compressed air 70-100 psi (5-7 bar) to the “Main Air In” port on the back of the machine. |
| 10. | If the “Spray Air Out”, “Dispense Air Out” or “Main Air Out” ports on the back of the machine are not required for the dispense equipment set-up onto the machine; then a blanking plug provided in the accessories bag must be inserted into the port(s). |
| 11. | Insert appropriate country type power chord into the power supply, and then connect to the power input connector on the back panel of the machine. |
| 12. | Tie back all electrical cables and pneumatic tubing so that they do not interfere with the machine motion when in operation. |
| | |

Z-AXIS DRIVE CYLINDER SETUP



FIG. 8: Z-Axis Drive Cylinder Setup

The machine is supplied with the Z-Axis drive cylinder set at a pre-set (recommended) speed. The upward and downward speeds are controlled by flow regulators integrated into the push-in fittings where the “Cylinder In” and “Cylinder Out” tubing connect to the Z-Axis drive cylinder.

The flow regulators act as an air restrictor to control the flow of pressurized air into and out of the drive cylinder, which in effect controls the movement speed.

The below procedure can be followed should it be necessary to adjust the speed of Z-Axis drive cylinder.

| | |
|-----------|--|
| 1. | Unscrew the locking nut on the “Cylinder In” and “Cylinder Out” flow regulator push-in fitting by turning it counter-clockwise. |
| 2. | <p>Rotate the adjustment screw on the “Cylinder In” flow regulator push-in fitting,</p> <ul style="list-style-type: none"> - Clockwise: reduces the downward speed - Counterclockwise: increases the downward speed <p>Rotate the adjustment screw on the “Cylinder Out” flow regulator push-in fitting,</p> <ul style="list-style-type: none"> - Clockwise: reduces the upward speed - Counterclockwise: increases the upward speed |
| 3. | Touch the “Test Screen” button on the HMI to enter into the Test Screen. |

| | |
|----|--|
| 4. | <p>To test the,</p> <ul style="list-style-type: none"> - Downward Speed: Touch the “Cylinder” button on the HMI so it changes to “ON”. The Z-Axis drive assembly will move downwards to the “DOWN” position. - Upward Speed: Touch the “Cylinder” button on the HMI so it changes to “OFF”. The Z-Axis drive assembly will move upwards to the “UP” home position. |
| 5. | <p>Continue to repeat steps 2 and 4 until the correct speed has been obtained.</p> <p>Note:- Setting the travel speeds too high, may effect dispense accuracy and general machine performance, due to vibration and oscillation occurring after the Z-Axis drive cylinder has finished moving.</p> |
| 6. | <p>Screw the locking nut on the “Cylinder In” and “Cylinder Out” flow regulator push-in fitting by turning it clockwise to lock the adjustment screw in place.</p> |
| 7. | <p>Touch the “Production Screen” button on the HMI to return back to the Production Screen.</p> |

DISPENSE SETUP



FIG. 9: Dispense Setup

The F1300N.2 Rotary Table is a versatile machine and therefore capable of having a variety of different dispense equipment systems mounted onto and incorporated into it. The setting up of the machine will therefore differ according to the selected configuration and dispense application.

Please contact your local sales representative, should you require additional support/guidance on the correct method for mounting alternative dispense equipment systems.

The dispense setup described below is based on the machine being setup to dispense directly from a 30 or 55cc syringe barrel and being used/operated in “Standard Mode”.

| | |
|----|---|
| 1. | <p>Mount the syringe barrel holder provided in the accessories bag onto the mounting plate of the Z-Axis Drive assembly using the 2 off M4 countersunk socket screws provided.</p> <p>Select the appropriate mounting holes that offer maximum work piece clearance, but still allows the dispense tip to reach all dispense areas on the workpiece.</p> <p>For improved positional repeatability when changing over syringe barrels, we recommend using Universal Syringe Holder #560920U.</p> |
| 2. | <p>Connect a 30/55cc syringe barrel adapter assembly (3ft/0.9m) between the “Dispense Air Out” port on the back of the machine and the syringe barrel.</p> <p>(If the syringe barrel adapter assembly 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 6mm stem x 4mm tube O.D. provided in the accessories bag.)</p> |

| | |
|------------|---|
| <p>3.</p> | <p>Insert the syringe barrel into the syringe barrel holder. Secure in place by gently rotating the upper locking screw of the syringe barrel until the syringe barrel is held securely in place with minimum pressure.</p> |
| <p>4.</p> | <p>Attach a suitable dispense tip to the syringe barrel.</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> |
| <p>5.</p> | <p>Gradually apply air pressure (70-100 psi) to the “Main Air In” port on the back of the machine.</p> |
| <p>6.</p> | <p>Ensure the fluid pressure gauge on the front panel of the machine is reading 0psi (0 Bar).</p> <p>Press and keep held down the “Purge” button on the front panel of the machine.</p> <p>Slowly increase the fluid pressure by rotating the pressure regulator clockwise on the front of the machine until fluid is dispensed at a steady rate from the dispense tip.</p> <p>Note:- A low viscosity fluid will require a low pressure value. A high viscosity fluid will require a high pressure value.</p> <p>Release the “Purge” button on the front panel of the machine once the anticipated fluid flow rate from the dispense tip has been achieved.</p> |
| <p>7.</p> | <p>If a low viscosity fluid is inside the syringe barrel, it may be noticed that fluid is dripping from the dispense tip. To eliminate this, slowly rotate the vacuum control knob on the front of the machine in a counterclockwise direction until the dripping stops.</p> |
| <p>8.</p> | <p>Switch on the power to the machine and then switch the power switch on the back of the machine to the “On” position.</p> <p>Allow the machine to boot up into the “Production Screen”.</p> |
| <p>9.</p> | <p>Touch the “Test Screen” button on the HMI to enter into the Test Screen.</p> |
| <p>10.</p> | <p>Touch the “Cylinder” button on the HMI so it changes to “ON”. The Z-Axis drive assembly will move downwards to the “DOWN” position.</p> <p>This is the position where fluid will be dispensed from.</p> |

| | |
|------------|---|
| 11. | Install the workpiece onto the machine that is to have fluid material dispensed onto it. |
| 12. | Maneuver the dispense tip into the required dispense location on the workpiece by first loosening the clamping levers on the Z-Axis drive assembly, horizontal bar assembly and vertical bar assembly. When the dispense tip is correctly positioned tighten the clamping levers. |
| 13. | Touch the “Cylinder” button on the HMI so it changes to “OFF”. The Z-Axis drive assembly will move upwards to the “UP” home position. |
| 14. | Touch the “Production Screen” button on the HMI to enter into the Production Screen. |
| 15. | Enter the required values into the parameter value cells, by touching the displayed parameter value cell (white color background) first and then use the pop-up dialogue window to key in the required value. |
| 16. | Press the start button to actuate the machine and begin the program cycle. |

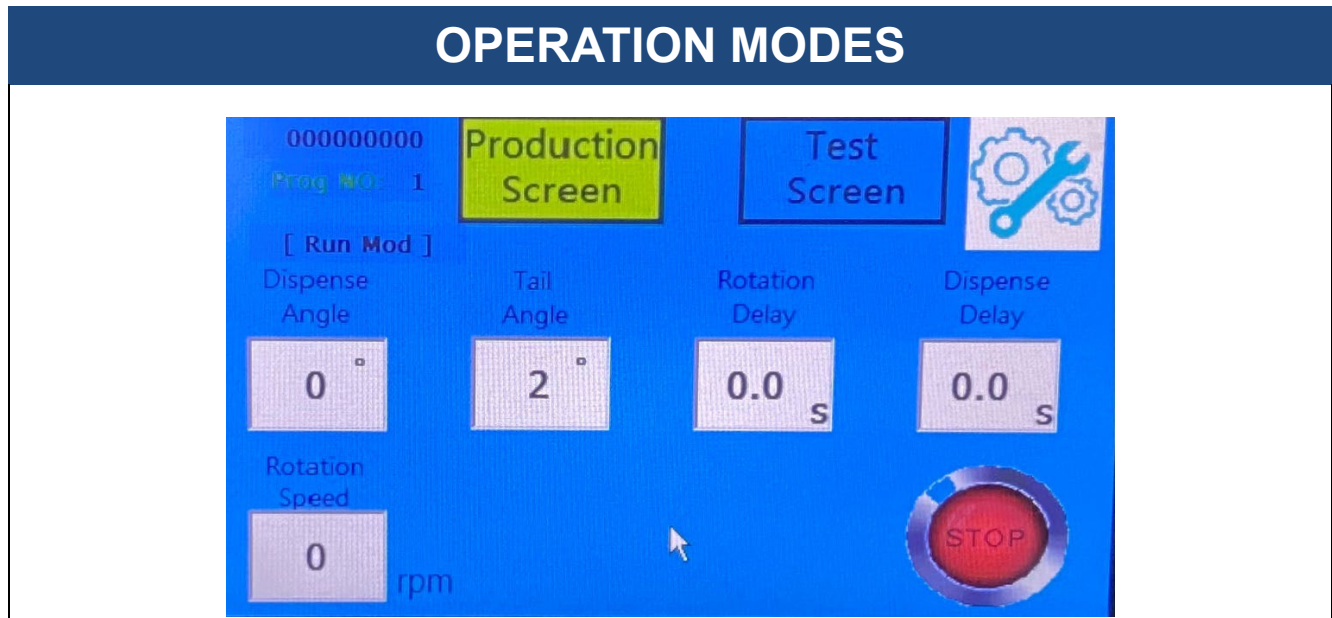


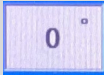


FIG. 10: Standard Mode

STANDARD MODE

Standard Mode allows the machine to dispense a single continuous circular fluid bead onto a workpiece.

| | |
|----|--|
| 1. | <div style="text-align: center; margin-bottom: 10px;">  </div> <p>Touch the  button to enter the “Machine Settings” screen and touch the operation mode button until the button displays the text “Standard Mode”.</p> <p>Then touch the back button to exit the “Machine Settings” screen and return back to the “Production” screen.</p> |
| 2. | <p>Touch the parameter value cell e.g.  to input the required parameter value.</p> <p>Dispense Angle: Sets the angle (degrees) duration that the motor will rotate for whilst dispensing fluid material.</p> <p>Tail Angle: Sets the angle (degrees) duration that the motor will continue to rotate for after the dispense angle. No fluid material is dispensed during the tail angle.</p> |

Rotation Delay: Sets the time (seconds) before the motor starts rotating, once the Z-Axis drive cylinder reaches the “DOWN” position. Fluid material is dispensed during the rotation delay time.

This parameter can be used,

- when dispensing micro fluid beads and there is a need to ensure the Z-Axis drive cylinder is in an absolute stationary position before fluid is dispensed onto the workpiece.
- When dispensing a high viscosity fluid material and there is a need to wait for the fluid to be dispensed out of the dispense tip and make contact with the workpiece.

Dispense Delay: Sets the time (seconds) after the motor starts rotating, that fluid material will not be dispensed.

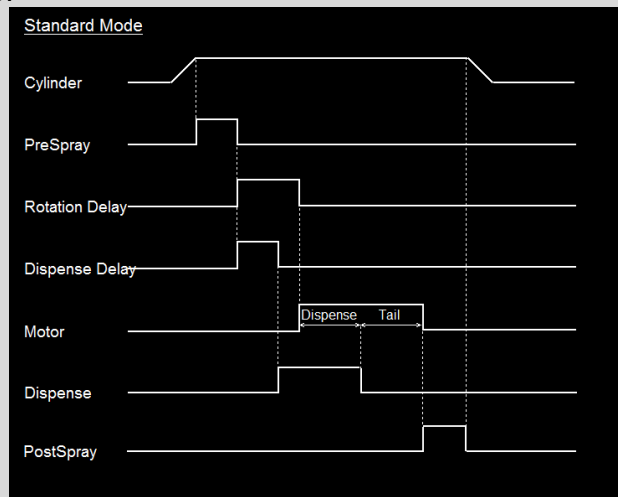
This parameter can be used when dispensing micro beads of low viscosity fluid materials and there is a need to eliminate a buildup of material at the start of the dispensing sequence onto the workpiece.

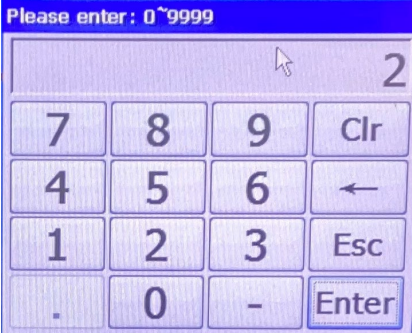
Rotation Speed: Sets the speed (rpm) that the motor will rotate at during the Dispense Delay, Dispense Angle and Tail Angle sequence.

Pre-Spray: Sets the time (seconds) that the atomizing air pressure of the connected spray valve will actuate for, before execution of the “Dispense Angle”

Post-Spray: Sets the time (seconds) that the atomizing air pressure of the connected spray valve will actuate for, after execution of the “Tail Angle”

A timing diagram is shown below of how all the parameters work together within a program cycle.



| | |
|-----------|---|
| <p>3.</p> | <p>A pop-up dialogue window will automatically appear allowing the user to type in the desired value.</p>  <p>Once the value has been entered, touch the “Enter” button on the dialogue window.</p> <p>The pop-up dialogue window will then automatically disappear, and the value will be automatically saved and displayed in the parameter value cell.</p> |
| <p>4.</p> | <p>To initiate the program cycle,</p> <ul style="list-style-type: none"> - Simultaneously push the two green start buttons on the front panel of the machine. - Press the green start button on the external start/stop box. - Supply a momentary external machine actuation input signal through the I/O connector. |
| <p>5.</p> | <p>The Z-Axis drive cylinder will move to the “DOWN” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |
| <p>6.</p> | <p>The dispensing cycle will be executed according to the parameter values displayed on the “Production” screen.</p> |
| <p>7.</p> | <p>The Z-Axis drive cylinder will move to the “UP” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |

OPERATION MODES

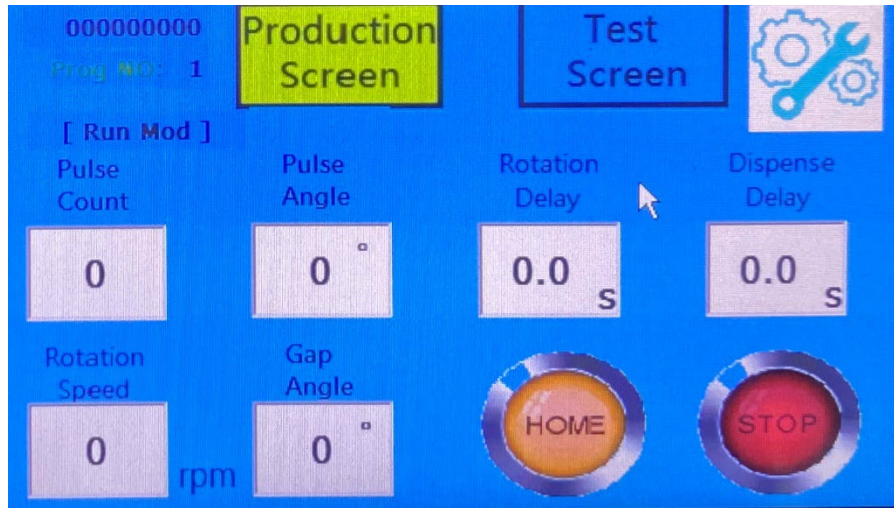



FIG. 11: Pulse Mode

PULSE MODE

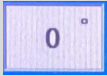
Pulse Mode allows the machine to dispense multiple dots / arcs within a single circular pattern on a workpiece.

1.

Touch the  button to enter the “Machine Settings” screen and touch the operation mode button until the button displays the text “Pulse Mode”.

Then touch the back button to exit the “Machine Settings” screen and return back to the “Production” screen.

2.

Touch the parameter value cell e.g.  to input the required parameter value.

Pulse Count: Sets the number of times that the “Pulse Angle” and “Gap Angle” will be repeated one after the other during the program cycle.

Pulse Angle: Sets the angle (degrees) duration that the motor will rotate for whilst dispensing fluid material.

Gap Angle: Sets the angle (degrees) duration that the motor will continue to rotate for after the “Pulse Angle”. No fluid material is dispensed during the gap angle.

Rotation Delay: Sets the time (seconds) before the motor starts rotating, once the Z-Axis drive cylinder reaches the “DOWN” position. Fluid material is dispensed during the rotation delay time.

This parameter can be used,

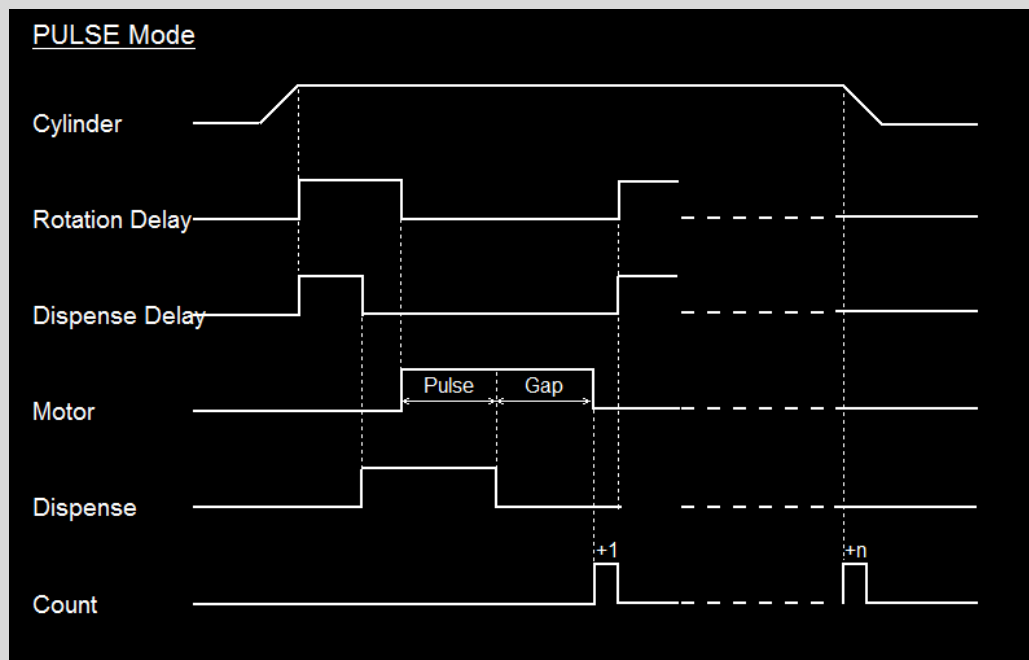
- when dispensing micro fluid beads and there is a need to ensure the Z-Axis drive cylinder is in an absolute stationary position before fluid is dispensed onto the workpiece.
- When dispensing a high viscosity fluid material and there is a need to wait for the fluid to be dispensed out of the dispense tip and make contact with the workpiece.

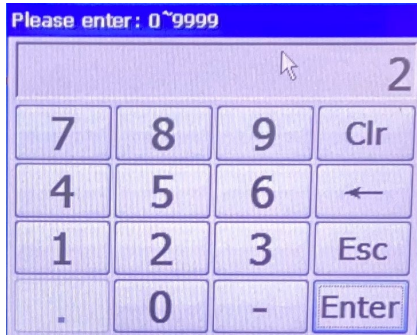
Dispense Delay: Sets the time (seconds) after the motor starts rotating, that fluid material will not be dispensed.

This parameter can be used when dispensing micro beads of low viscosity fluid materials and there is a need to eliminate a buildup of material at the start of the dispensing sequence onto the workpiece.

Rotation Speed: Sets the speed (rpm) that the motor will rotate at during the Dispense Delay, Dispense Angle and Gap Angle sequence.

A timing diagram is shown below of how all the parameters work together within a program cycle.



| | |
|-----------|---|
| <p>3.</p> | <p>A pop-up dialogue window will automatically appear allowing the user to type in the desired value.</p>  <p>Once the value has been entered, touch the “Enter” button on the dialogue window.</p> <p>The pop-up dialogue window will then automatically disappear, and the value will be automatically saved and displayed in the parameter value cell.</p> |
| <p>4.</p> | <p>To initiate the program cycle,</p> <ul style="list-style-type: none"> - Simultaneously push the two green start buttons on the front panel of the machine. - Press the green start button on the external start/stop box. - Supply a momentary external machine actuation input signal through the I/O connector. |
| <p>5.</p> | <p>The Z-Axis drive cylinder will move to the “DOWN” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |
| <p>6.</p> | <p>The dispensing cycle will be executed according to the parameter values displayed on the “Production” screen.</p> |
| <p>7.</p> | <p>The Z-Axis drive cylinder will move to the “UP” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |

OPERATION MODES

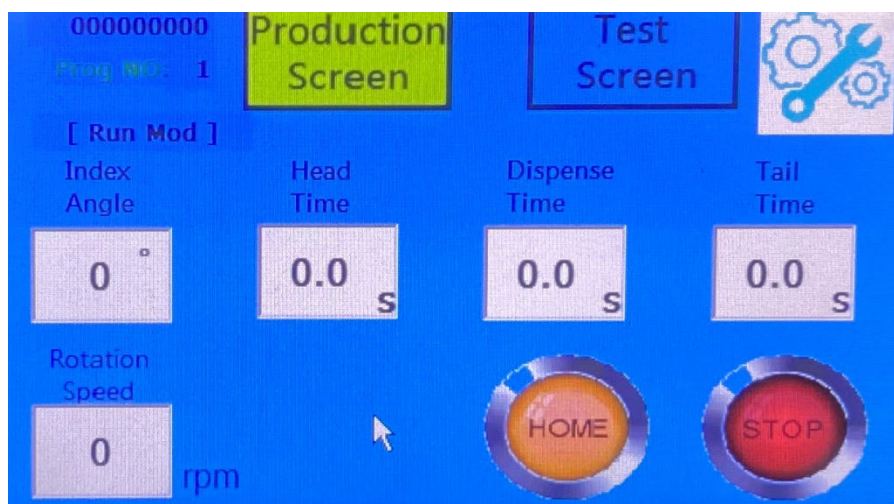



FIG. 12: Index Mode

INDEX MODE

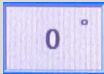
index Mode allows the machine to dispense onto a workpiece in a fixed position for a set period of time, before indexing to another position at a set angle.

1.

Touch the  button to enter the “Machine Settings” screen and touch the operation mode button until the button displays the text “Index Mode”.

Then touch the back button to exit the “Machine Settings” screen and return back to the “Production” screen.

2.

Touch the parameter value cell e.g.  to input the required parameter value.

Index Angle: Sets the angle (degrees) duration that the motor will rotate for at the end of the program cycle, when the Z-Axis drive cylinder reaches the “UP” position after completing the “Dispense Time”. No fluid material is dispensed during the index angle.

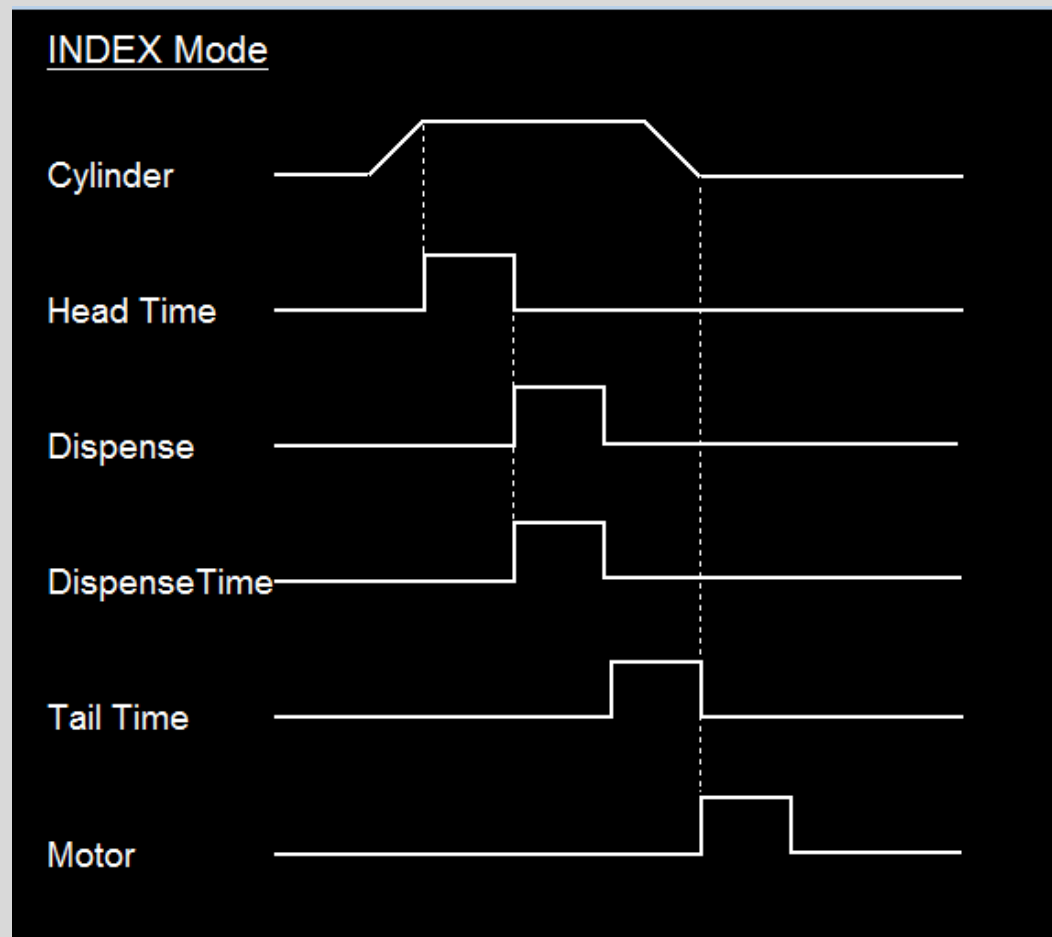
Head Time: Sets the time (seconds) before the machine starts dispensing, once the Z-Axis drive cylinder reaches the “DOWN” position. No fluid material is dispensed during the head time.

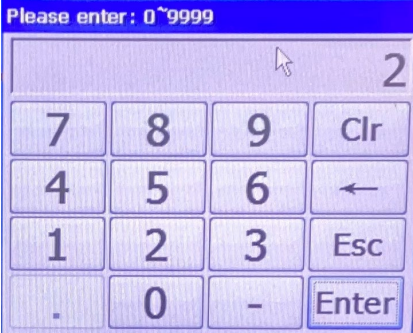
Dispense Time: Sets the time (seconds) that fluid material will be dispensed for.

Tail Time: Sets the time (seconds) that the Z-Axis drive cylinder will remain in the “DOWN” position at the end of the “Dispense Time”, before moving to the “UP” position. No fluid material is dispensed during the tail time.

Rotation Speed: Sets the speed (rpm) that the motor will rotate at during the index angle.

A timing diagram is shown below of how all the parameters work together within a program cycle.



| | |
|-----------|---|
| <p>3.</p> | <p>A pop-up dialogue window will automatically appear allowing the user to type in the desired value.</p>  <p>Once the value has been entered, touch the “Enter” button on the dialogue window.</p> <p>The pop-up dialogue window will then automatically disappear, and the value will be automatically saved and displayed in the parameter value cell.</p> |
| <p>4.</p> | <p>To initiate the program cycle,</p> <ul style="list-style-type: none"> - Simultaneously push the two green start buttons on the front panel of the machine. - Press the green start button on the external start/stop box. - Supply a momentary external machine actuation input signal through the I/O connector. |
| <p>5.</p> | <p>The Z-Axis drive cylinder will move to the “DOWN” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |
| <p>6.</p> | <p>The dispensing cycle will be executed according to the parameter values displayed on the “Production” screen.</p> |
| <p>7.</p> | <p>The Z-Axis drive cylinder will move to the “UP” position.</p> <p>Note: This step will be ignored if “STATIC MODE” has been activated in the “Machine Settings” screen.</p> |

WARNING MESSAGES

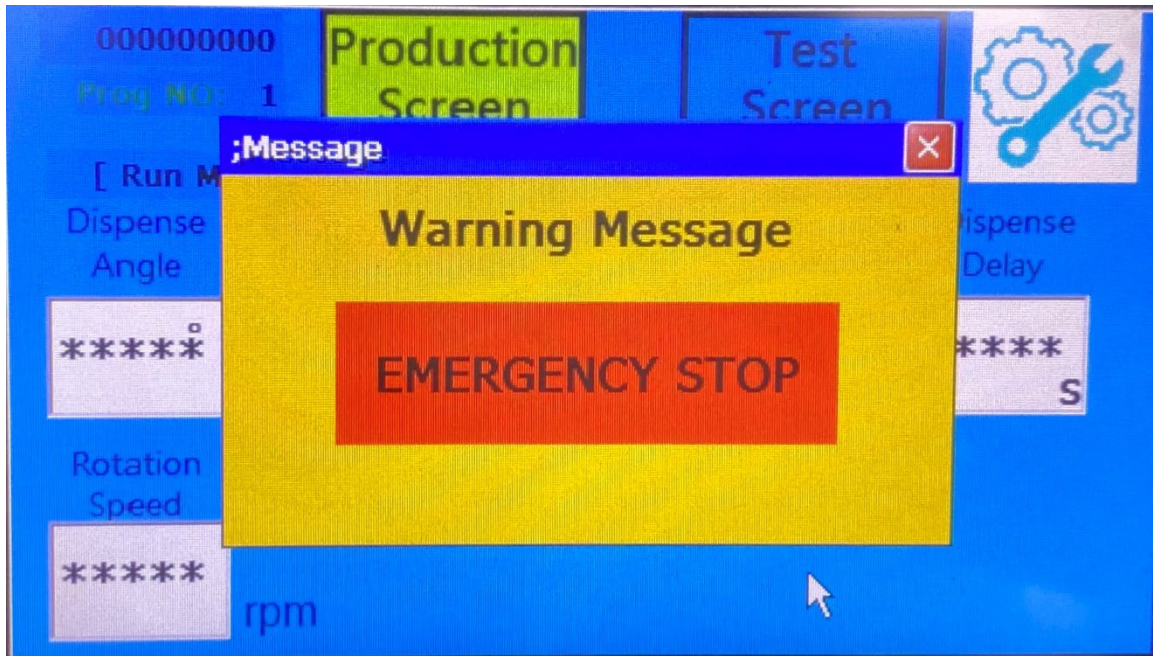


FIG. 13: Emergency Stop

Emergency Stop

The pop-up message is automatically displayed in the event that the Emergency Stop button on the front panel of the machine is pressed, or the external E-Stop circuit on the EXT. connector changes to an “open” state.

The pop-up message will automatically disappear when the Emergency Stop button on the front panel of the machine is released, or the external E-Stop circuit on the EXT. connector changes to a “closed” state.

WARNING MESSAGES

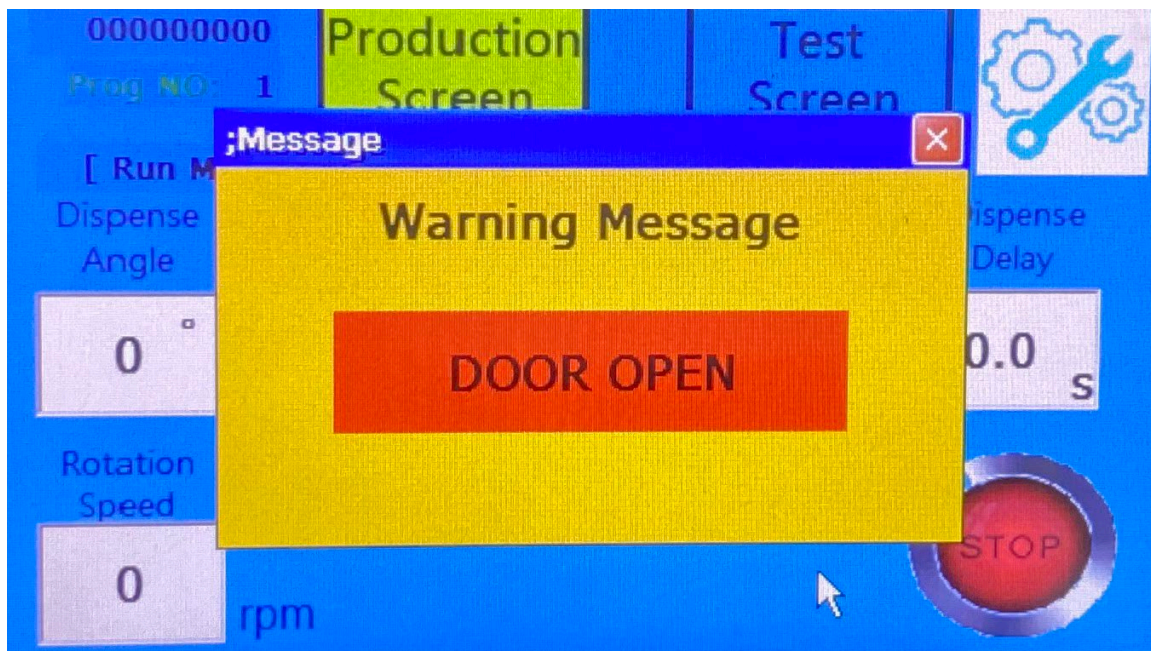


FIG. 14: Door Open

Door Open

The pop-up message is automatically displayed in the event that the Door Circuit on the EXT. connector (controlling the safety light curtain or door switch) has been broken and changes to an “open” circuit.

The pop-up message will automatically disappear when the Door Circuit on the EXT. connector (controlling the safety light curtain or door switch) has been closed and changes to a “closed” circuit.

WARNING MESSAGES



FIG. 15: Reset Machine

Reset Machine

In the event that the “STOP” button on the HMI display screen is touched or when the Emergency Stop button on the front of the machine is released, the pop-up message is displayed requesting for the machine to be reset.

When the “RESET” button on the front panel of the machine or the reset button connected to the EXT. connector is pressed , the pop-up message will disappear.

WARNING MESSAGES

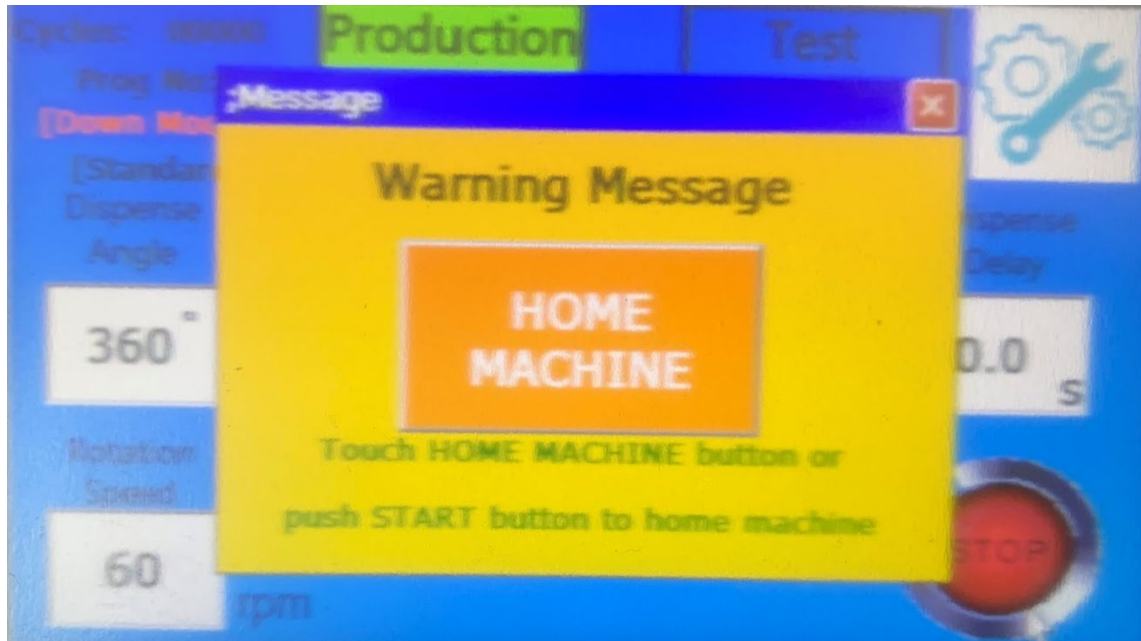


FIG. 16: Home Machine

Home Machine

The pop-up message is automatically displayed when the “RESET” button on the front panel of the machine or the reset button connected to the EXT. connector is pressed

The pop-up message will disappear when,

- The “HOME MACHINE” button on the HMI display screen is touched.
- The two green start buttons on the front panel of the machine are pushed.
- The green start button on the external start/stop box is pushed.
- A momentary external machine actuation “Start” input signal through the I/O connector is received.

WARNING MESSAGES



FIG. 17: Alarm In

Alarm In

The pop-up message is automatically displayed when the “Alarm-in” circuit on the I/O connector is activated.

The pop-up message will automatically disappear when the “Alarm-in” circuit on the I/O connector is deactivated.

WARNING MESSAGES

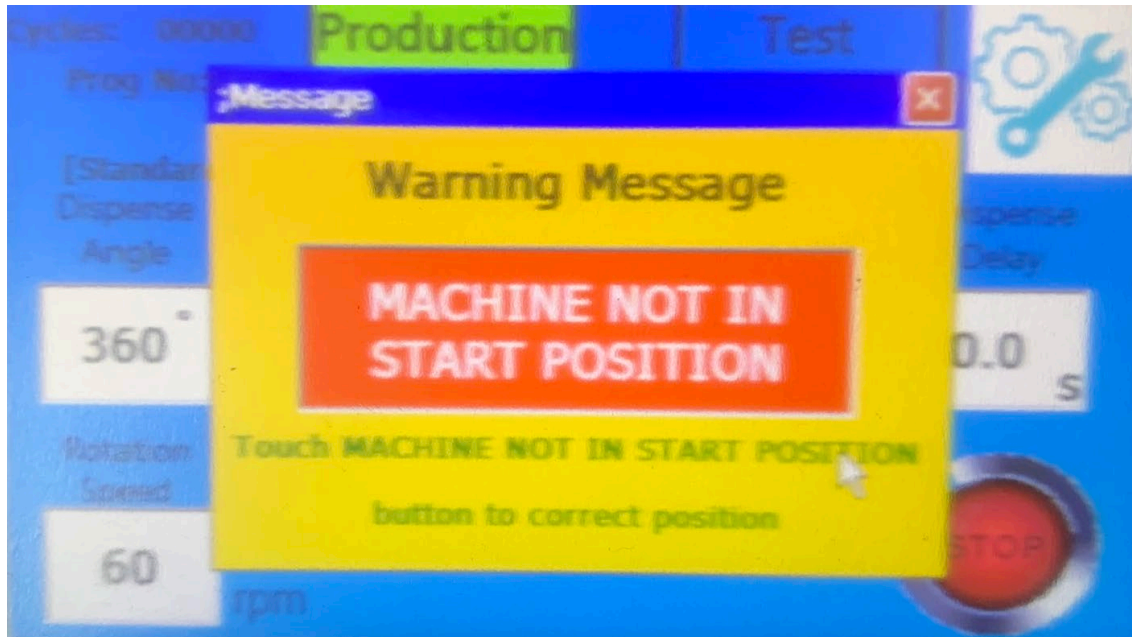


FIG. 18: Machine Not in Start Position

Machine Not in Start Position

The pop-up message is displayed in the event that the Z-Axis drive cylinder is not in the correct start position, when a program cycle is initiated.

When the “MACHINE NOT IN START POSITION” button on the HMI display screen is touched, the Z-Axis drive cylinder will move to the correct start position and pop-up message will disappear.

WARNING MESSAGES

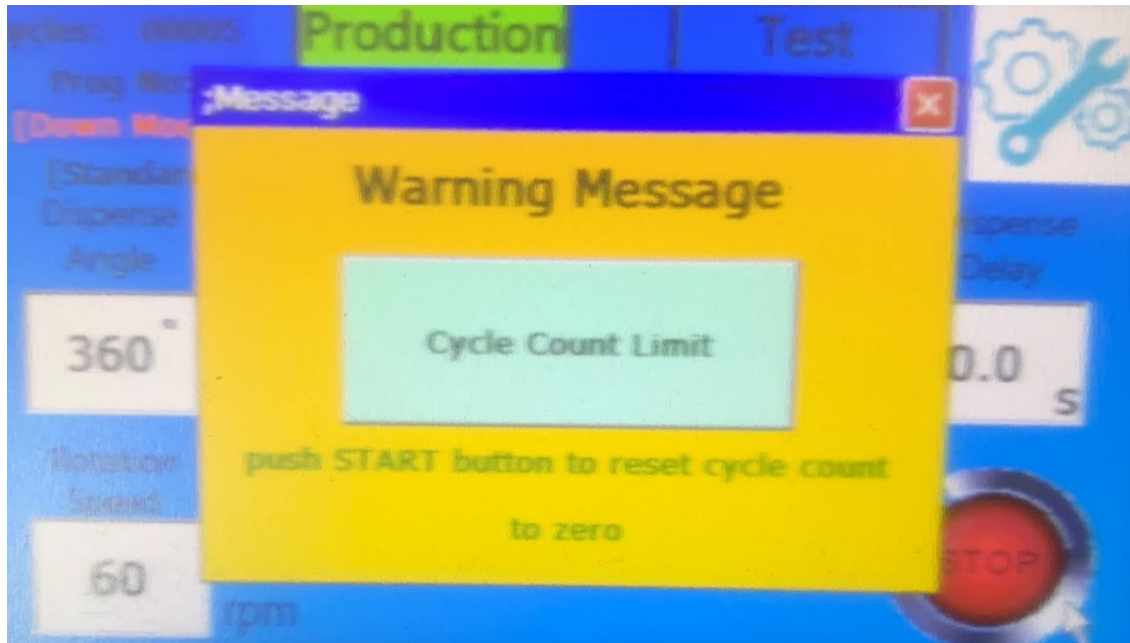


FIG. 19: Cycle Count Limit

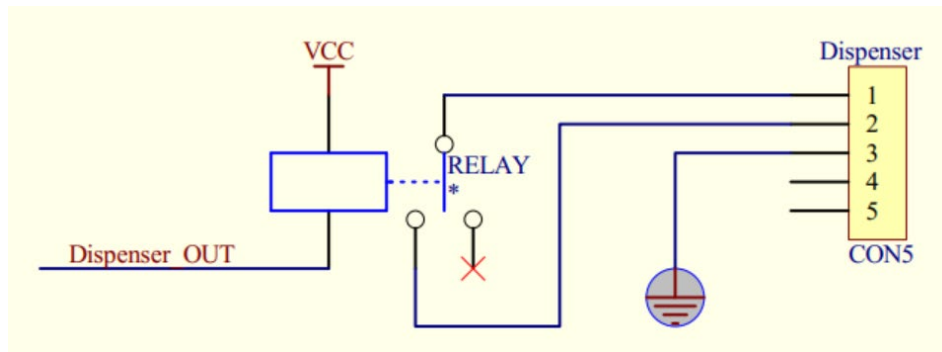
Cycle Count Limit

If using the Cycle Count limit function, the pop-up message is automatically displayed when the cycle count limit value is reached.

The pop-up message will disappear when,

- The two green start buttons on the front panel of the machine are pushed.
- The green start button on the external start/stop box is pushed.
- A momentary external machine actuation "Start" input signal through the I/O connector is received.

EXTERNAL DISPENSER ACTUATION

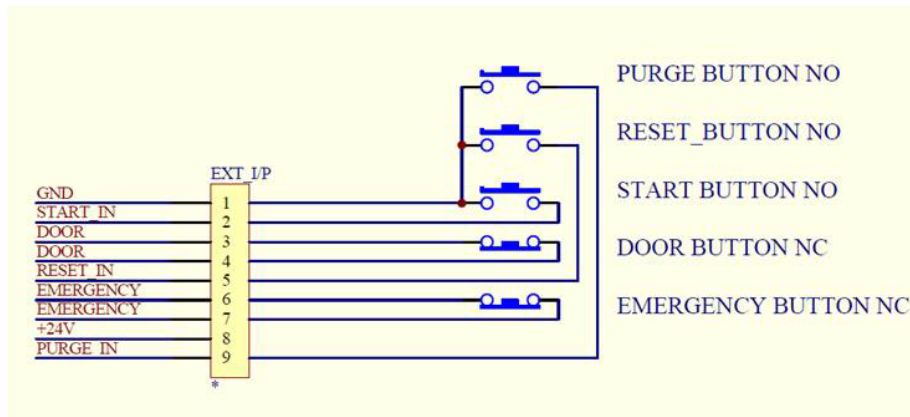


| Pin# | Description |
|------|---------------------|
| 1 | NOM (Normally Open) |
| 2 | COM (Common) |
| 3 | |

FIG. 20: External Dispenser Actuation

| | |
|---------------|--|
| Output | A dry contact closure (0 Volt) between Normally Open (Pin #1) and Common (Pin #2) will trigger a dispense signal to be initiated on an external dispense controller. |
| | <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 control board and void all warranty conditions.</p> |

EXT. CONNECTOR



| Pin# | Description |
|------|--------------------|
| 1 | GND |
| 2 | Start Signal |
| 3 | Door Switch (COM) |
| 4 | Door Switch (NC) |
| 5 | Reset |
| 6 | Emergency Stop In |
| 7 | Emergency Stop Out |
| 8 | +24V DC |
| 9 | Purge Signal |

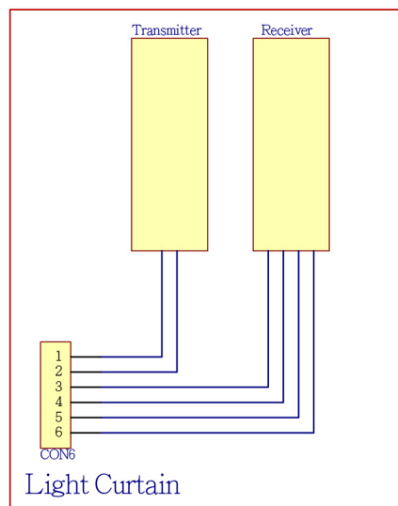
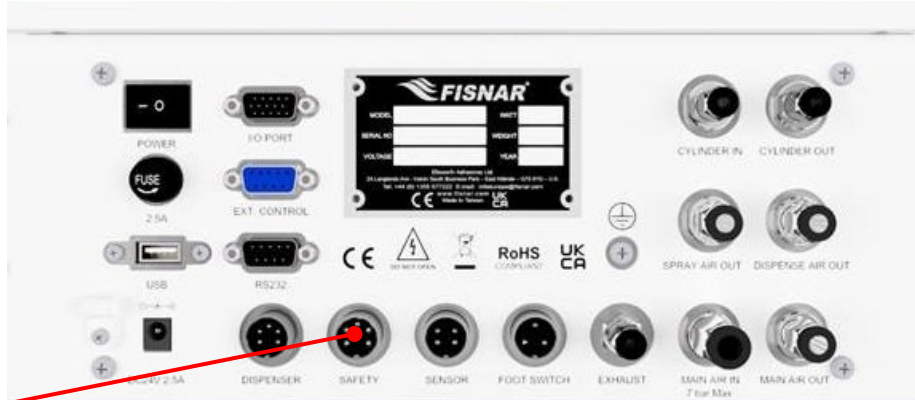
FIG. 21: Ext. Connector



PLEASE READ:

When the Ext. Connector is not connected to an external start/stop box, the "SHORTED" EXT. connector included within the accessories, must be fitted.

SAFETY CONNECTOR



| Pin# | Description |
|------|-------------------|
| 1 | Brown TX – 24V DC |
| 2 | Blue TX – 0V DC |
| 3 | Brown RX – 24V DC |
| 4 | Blue RX – 0V DC |
| 5 | Black RX – OSSD1 |
| 6 | White RX – OSSD2 |

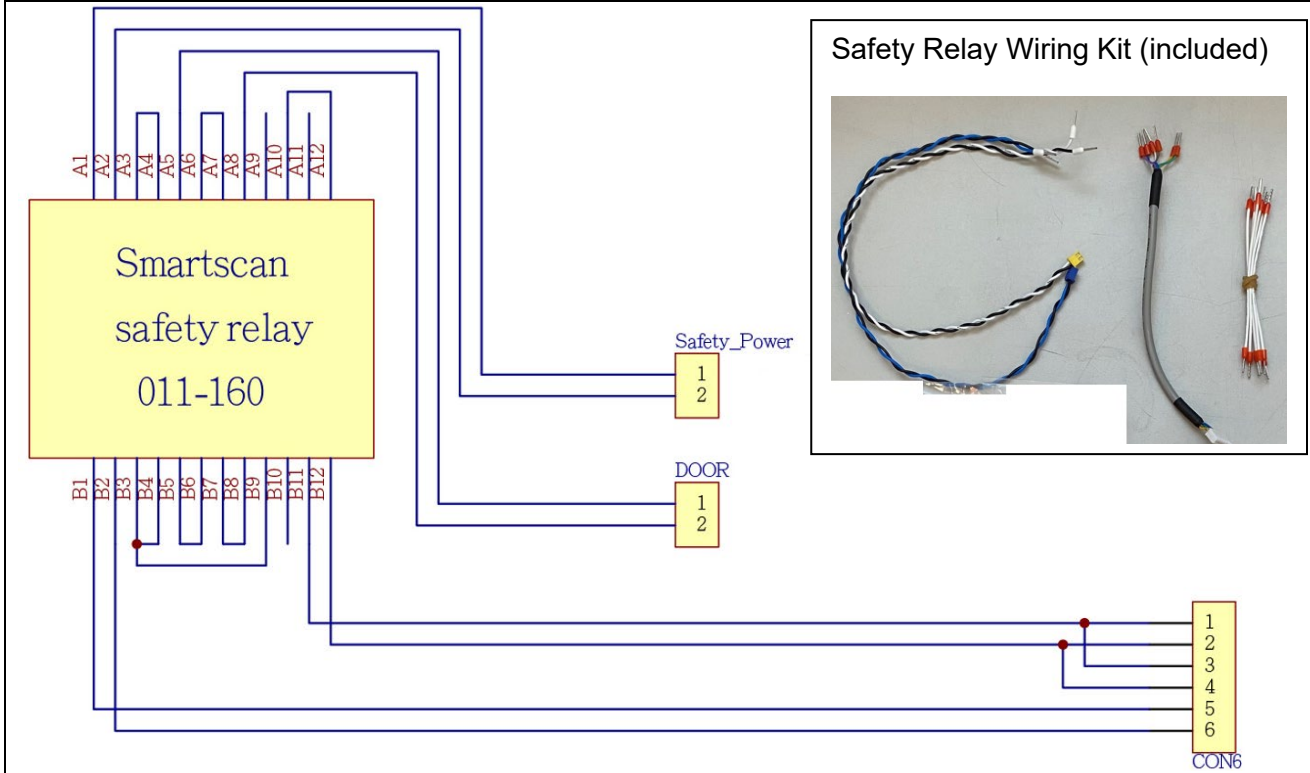
FIG. 22: Safety Connector



PLEASE READ:

This connector is only to be used when connecting an external Safety Light Curtain or Door Switch to a Safety Relay (sold separately) fitted inside the machine.

INTERNAL SAFETY RELAY



| I.D / Pin# | Color | Safety Relay Pin# |
|------------|--------|-------------------|
| Power / 1 | Blue | A1 |
| Power / 2 | Black | A2 |
| Door / 1 | Black | A5 |
| Door / 2 | White | A8 |
| Con 6 / 1 | Yellow | B11 |
| Con 6 / 2 | Green | B12 |
| Con 6 / 3 | Grey | B11 |
| Con 6 / 4 | White | B12 |
| Con 6 / 5 | Blue | B1 |
| Con 6 / 6 | Pink | B2 |

FIG. 22: Internal Safety Relay

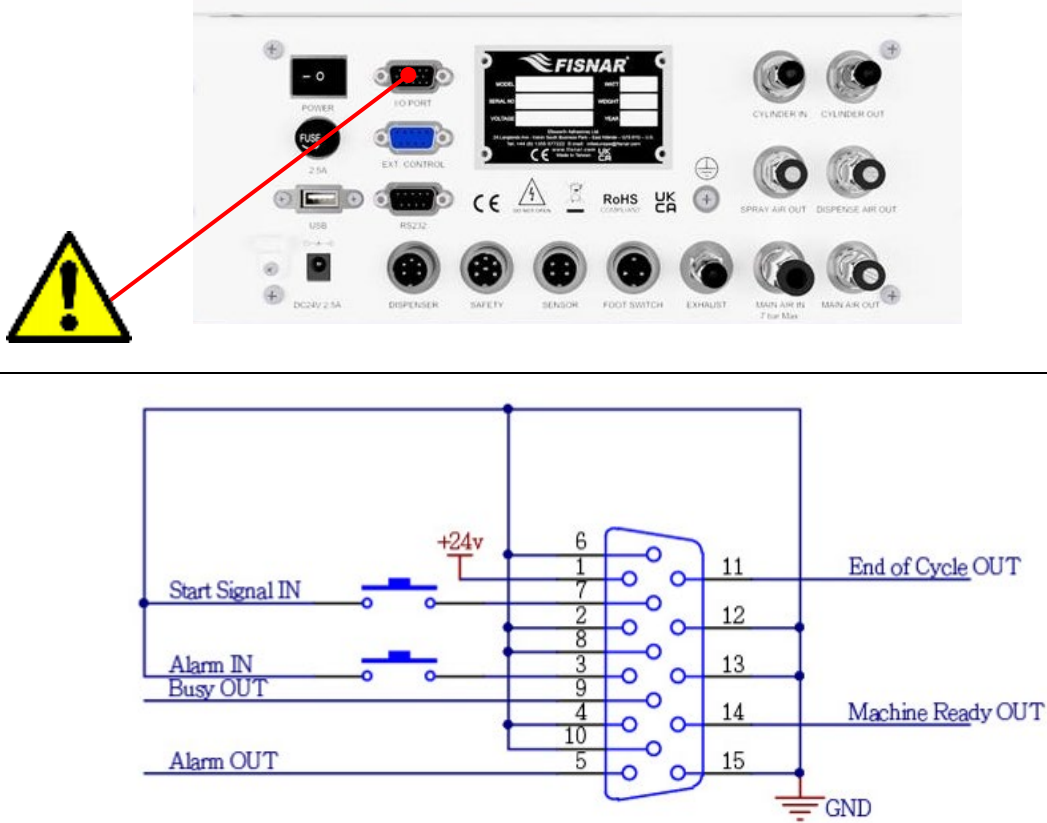
The machine has been designed to allow a safety relay (F1300AKIT-SR sold separately) to be internally fitted and wired using the wiring kit supplied as part of the machine accessories. This negates the need for additional external junction boxes to be used.

The provided wiring kit is used to create the correct communication/connection between the safety relay and control board.

To create a successful connection, please ensure the provided jumper wires are used to make linked connections between the following pin numbers on the safety relay.

A3>A4, A6>A7, A10>A12, B3>B4, B3>B9, B5>B6, B7>B8

I/O CONNECTOR



| Pin # | Function |
|-------|------------------------------------|
| 1 | Power +ve (24V DC) |
| 2 | Power -ve (0V DC) |
| 3 | Alarm IN |
| 4 | Alarm IN (GND) |
| 5 | Alarm OUT |
| 6 | Alarm OUT (GND) |
| 7 | Start Signal / Initialize IN |
| 8 | Start Signal / Initialize IN (GND) |
| 9 | Machine Busy OUT |
| 10 | Machine Busy OUT (GND) |
| 11 | End of Cycle OUT |
| 12 | End of Cycle OUT (GND) |
| 13 | Internal Ground (GND) |
| 14 | Machine Ready OUT |
| 15 | Machine Ready OUT (GND) |

FIG. 23: Input / Output Schematic

OUTPUT SIGNALS

Output Type: Open Collector Photocoupler (NPN)

Output Power: Output signals are able to sink a maximum of 250 milliamps per pin.

Output Function: When the output signal is activated, the circuit between the output pin (pin #5, 9, 11 & 14) and the GND (pin #6, 10, 12 & 15) is completed.

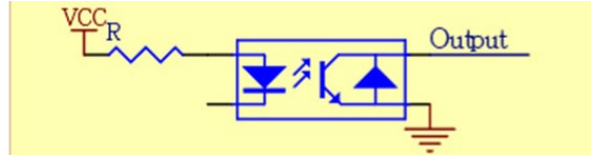


FIG. 24: Example of I/O output port driving



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 photocoupler.

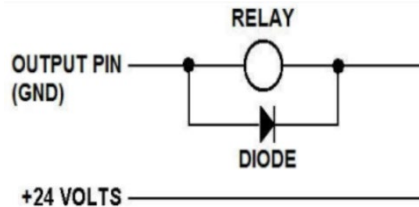


FIG. 25: Installation of Diode

INPUT SIGNALS

Input Type: Photocoupler

Input Power: Pin #3 and #7 are an externally driven dry-contact voltage free contact closure circuit (I.E. Switch or Relay).

Input Function: To activate an input signal, pull the input pin (pin #3, #7) down to a GND pin (pin #4, #8). Input signals utilize the machine internal power supply.

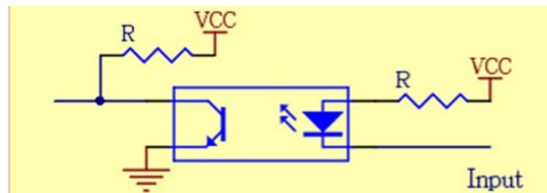


FIG. 26: Example of I/O input port driving

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 control board and void all warranty conditions.

OUTPUT SIGNAL DEFINITION

Pin #5 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 Emergency Stop Button has been pressed.
 - o If the “Door Open” warning message is displayed.
 - o If the “Reset Machine” warning message is displayed.
 - o If the “Home Machine” warning message is displayed.
 - o If the “Machine Not in Start Position” warning message is displayed.
 - o If the “Cycle Count Limit” has been activated.

- If the “Alarm Out” signal is activated during a program cycle, the program cycle will be automatically stopped.

- It will 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 will then be automatically switched off.

Pin #9 Machine Busy (Output):

- When the machine is actuating a program cycle the signal will be activated.

- When the machine is not actuating a program cycle the signal will not be activated.

Pin #11 End of Cycle (Output):

- When the machine has completed a program cycle the signal will be momentarily activated for a period of 500ms.

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.
 - o Emergency Stop button is pressed.
 - o Door Circuit is in an “OPEN” state.
 - o A warning message is displayed on the HMI.
 - o The machine HMI is not in the “Production Screen”

- The signal will be re-activated automatically when all of the above conditions do not occur.

INPUT SIGNAL DEFINITION

Pin #3 Alarm In (Input):

- When connected to a GND pin the “Alarm In” signal will be activated, resulting in the “Alarm Out” signal (Pin #5) being activated automatically.

Pin #7 Start Signal / Initialize IN (Input):

- When connected to a GND pin the “CC Initialize” signal will be activated, resulting in the machine program cycle being actuated.

I/O TIMING DIAGRAM

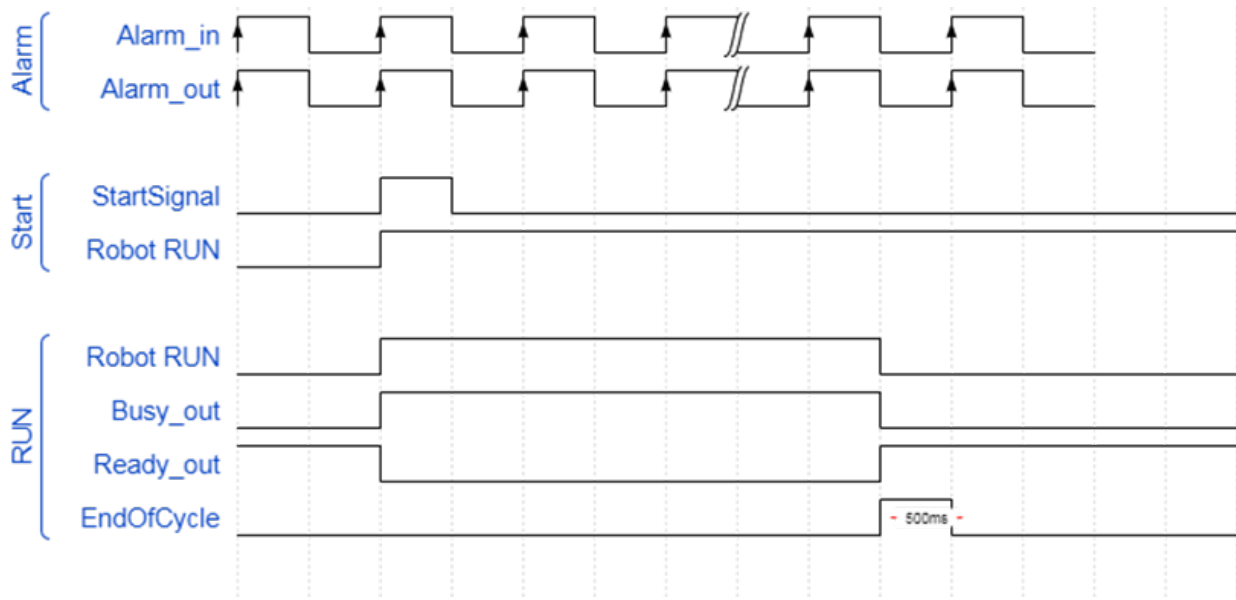
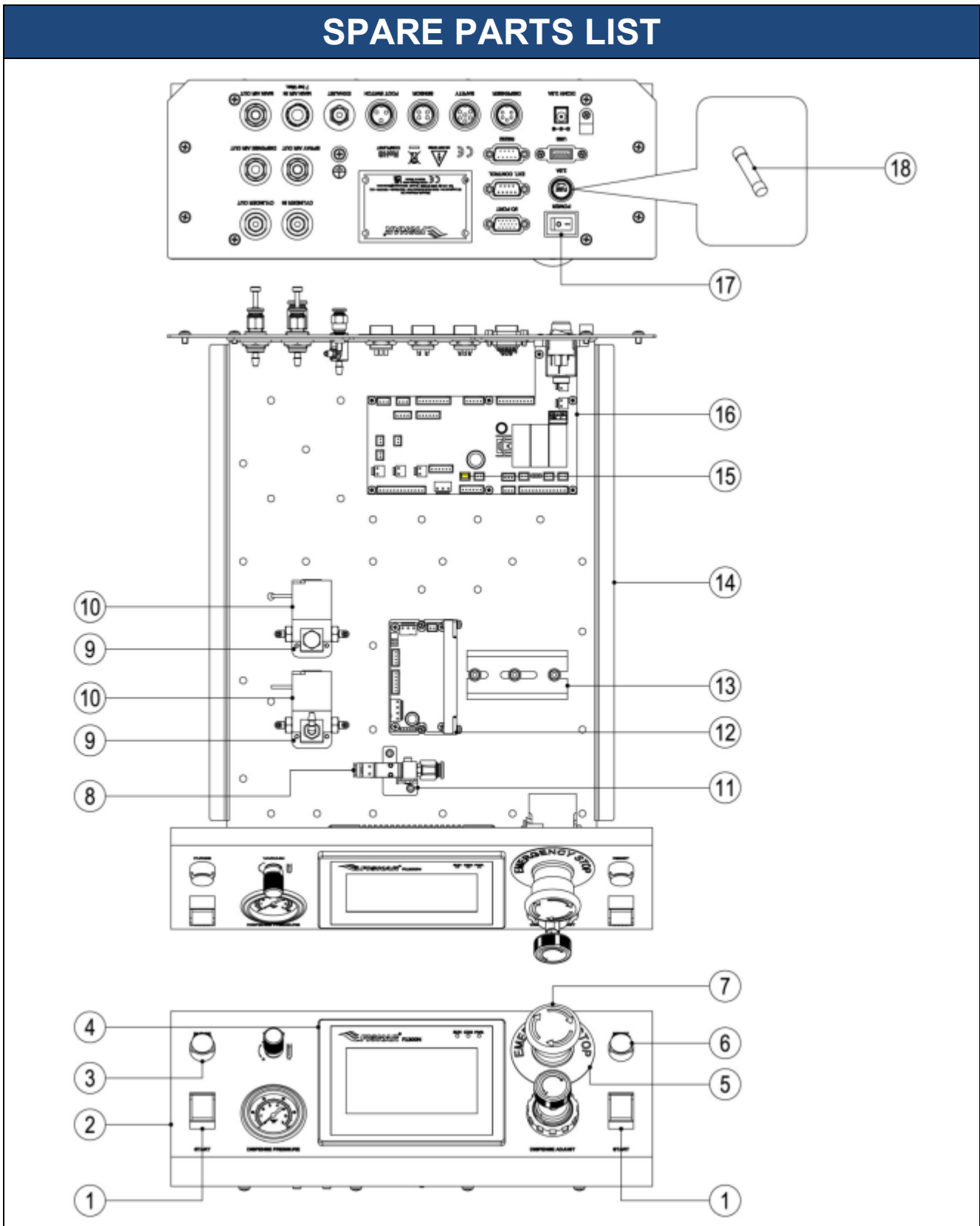


FIG. 27: I/O Timing Diagram

SPARE PARTS LIST

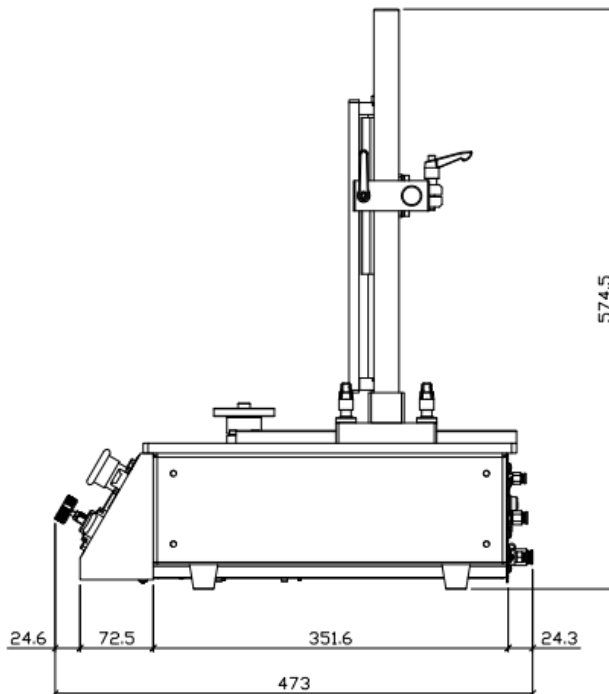
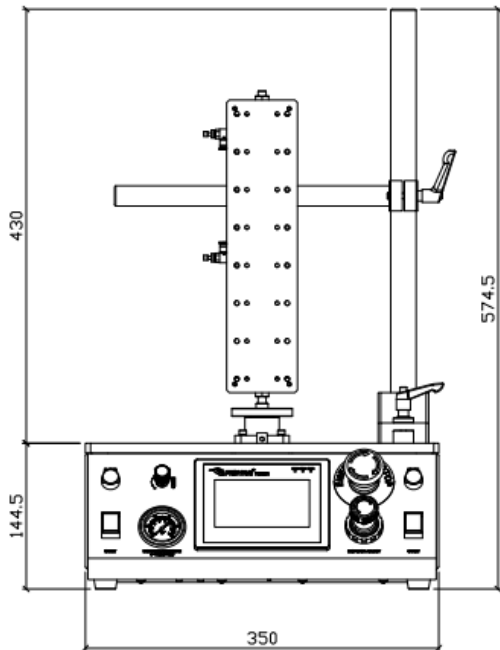
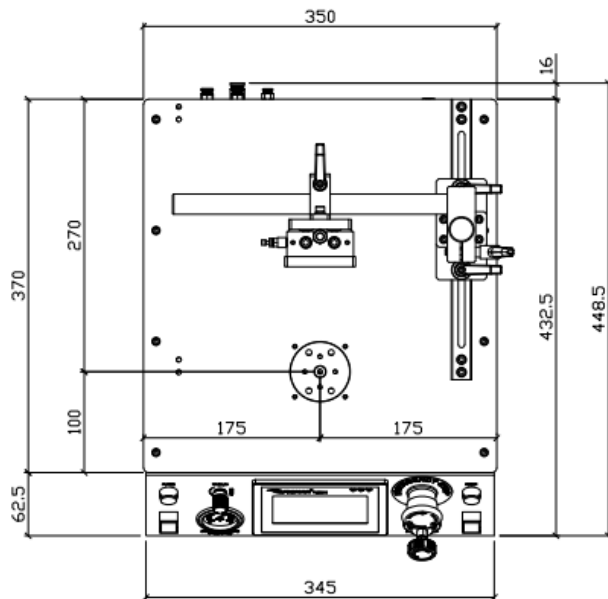


SPARE PARTS LIST

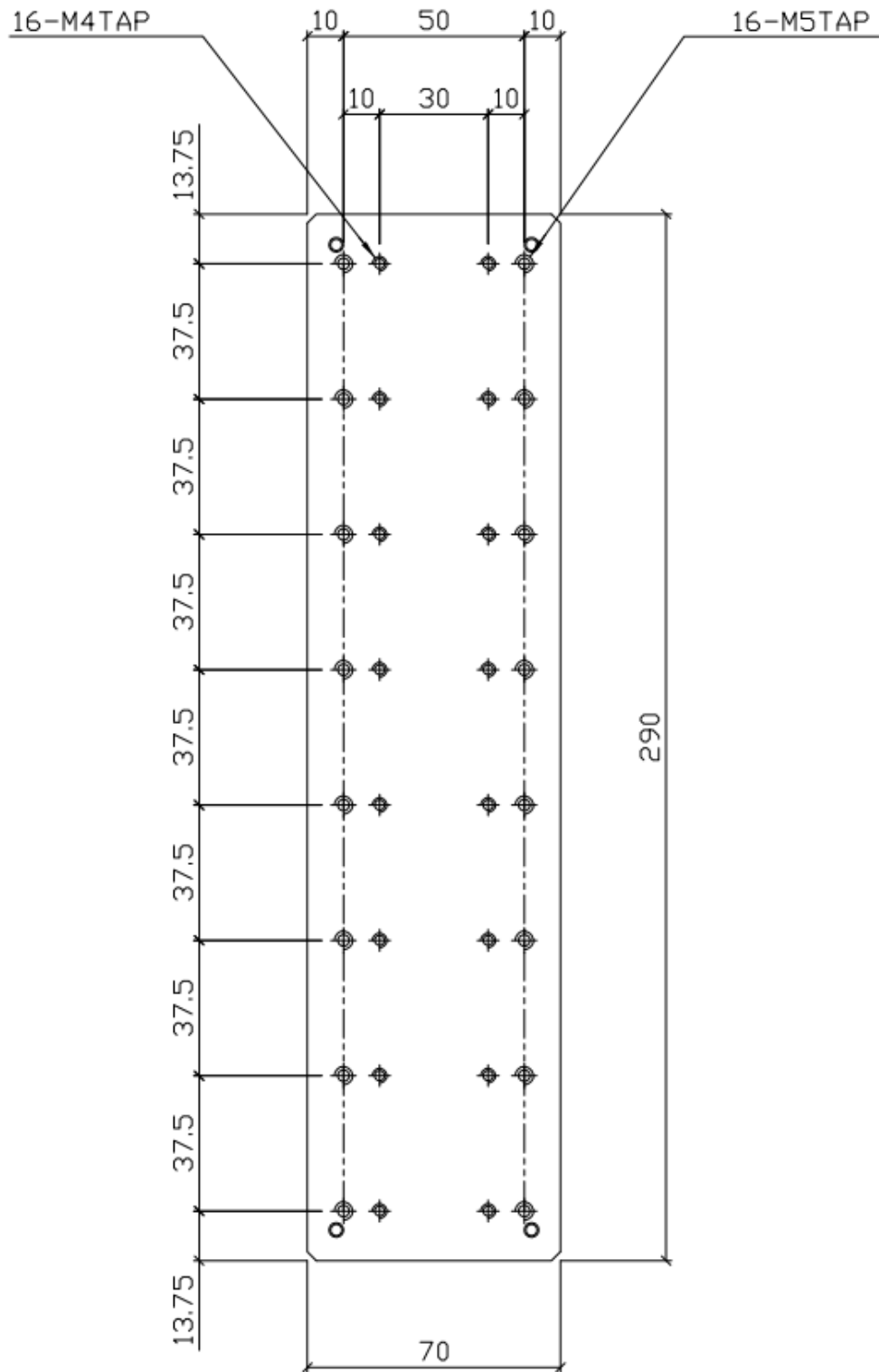
| Ref. | Item Number | Description |
|------|----------------------|-------------------------------------|
| 1 | A08SWOT-D16LMT2R | Start Button |
| 2 | 1705-10240004 | Front Panel |
| 3 | A08PSW-P16LMR2-1ABOW | Purge Button |
| 4 | 1705-10240004 | HMI Display Screen |
| 5 | 1211-10900003 | Emergency Stop Sticker |
| 6 | A08PSW-D16LMR2-1ABOB | Reset Button |
| 7 | A08PSW-A22EM11R | Emergency Stop Button |
| 8 | 1705-10400002 | Solenoid Valve – Air Cylinder Drive |
| 9 | 1402-10230004 | Solenoid Valve Fixing Plate |
| 10 | 0603-20400009 | Solenoid Valve – Dispense / Spray |
| 11 | 1705-10230001 | Solenoid Valve Fixing Plate |
| 12 | A13AC-F1300N-1DVB | Driver Card |
| 13 | A22ROT-AL-63-35 | Din Rail – Safety Relay |
| 14 | 1705-10240003 | Chassis Plate |
| 15 | A10COT-JUMP-YR | Jumper Plug |
| 16 | A13AC-F1300N-1TRC | Control Board |
| 17 | A08RSW-SW5009BAR | On / Off Switch |
| 18 | A22FUSE-2.5-250R | Fuse |
| 19* | 1705-15400006 | Vacuum Control Knob |
| 20* | 1705-15400007 | Pressure Gauge |
| 21* | 1402-10400004 | Pressure Regulator |
| 22* | 1705-15400010 | XY Axis Positioning Module |
| 23* | 1705-15400012 | Z Axis Cylinder Drive Assembly |
| 24* | A21MOTOR-60MR354F3B | 3-Phase Stepper Motor |
| 25* | 1705-15400011 | Turntable Module |
| 26* | A08DCW-EE-SX674R | Homing Sensor |
| 27* | A09WP-1705-1-W11 | Z-Axis Cylinder Sensor Wire |

* Item Not Shown

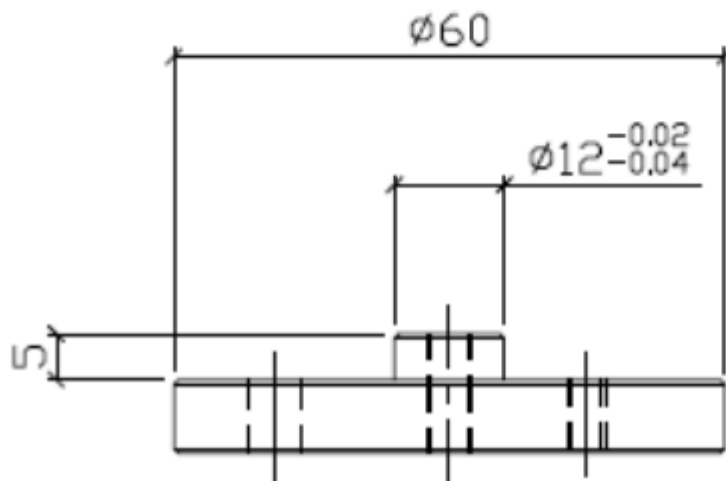
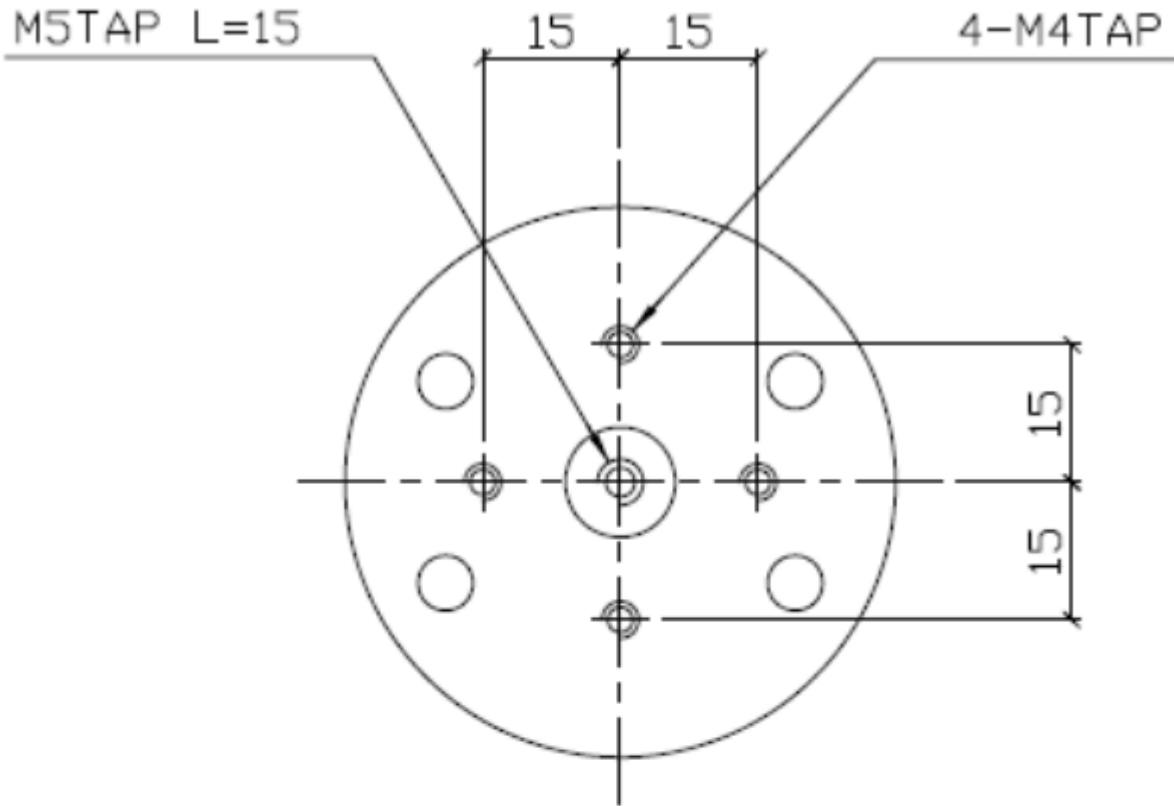
MACHINE DRAWING



Z-AXIS TOOLING PLATE DRAWING



TURNTABLE DRAWING



MAINTENANCE

It is essential to inspect and maintain the machine to prevent unexpected failures or malfunctions, thus ensuring safe operation and maximizing the machines life correctly and periodically.

The external parts of the machine should be kept clean at all times. Use a soft cloth to clean the machine. Do not use compressed air or chemical (solvent) products to clean the machine, as they could migrate inside the machine and cause damage.

We recommend the below checks are carried out on the machine according to the described frequencies.

| Check Point | Check Cycle Frequency | | | |
|--------------------------------------|-----------------------|--------|---------|--------|
| | Daily | Weekly | Monthly | Yearly |
| Tilt or deviation of Z-Axis Cylinder | x | | | |
| Pneumatic fittings and tubings | x | | | |
| Appearance | x | | | |
| Stability | x | | | |
| Motor performance | | x | | |
| Drive cylinder | | x | | |
| Mechanical fixings | | | x | |
| Electrical connections | | | x | |
| Machine accuracy / repeatability | | | x | |
| Machine overhaul | | | | x |

| CHECK POINT | CHECK ACTION | CORRECTIVE ACTION |
|--------------------------------------|---|--|
| Tilt or deviation of Z-Axis Cylinder | <ul style="list-style-type: none"> - The dispense tip is in the incorrect dispense position on the workpiece. | <ul style="list-style-type: none"> - Loosen the axis adjustment lever handles and manually move the tip to the correct dispense position on the workpiece. Then tighten the axis adjustment lever handles |
| Pneumatic tubing and fittings | <ul style="list-style-type: none"> - Pneumatic tubing is twisted or kinked. - Air leakages between pneumatic tubing and fittings. | <ul style="list-style-type: none"> - Remove the cause of tubing being twisted or kinked. - Replace the tubing or fittings as needed. |
| Appearance | <ul style="list-style-type: none"> - Fluid material has contaminated the machine surface. | <ul style="list-style-type: none"> - Keep external surfaces of the machine clean. |

| | | |
|----------------------------------|---|--|
| Stability | <ul style="list-style-type: none"> - Rotary table is unstable / not-sitting flat. | <ul style="list-style-type: none"> - Remove objects causing instability. - Check that all rubber anti-vibration feet are in place. - Relocate machine to a flat surface. |
| Motor Performance | <ul style="list-style-type: none"> - Motor is running slowly. - Motor is not running at linear speed. | <ul style="list-style-type: none"> - Check for and remove debris around the turntable. - Check bearing alignment on motor. - Replace motor - Replace driver card |
| Drive Cylinder Motion | <ul style="list-style-type: none"> - Cylinder is not moving. - Cylinder moving too quickly or too slowly. | <ul style="list-style-type: none"> - Inspect position sensors are operating correctly. - Inspect and adjust pneumatic flow regulators on push-in fitting of drive cylinder to achieve correct speed. |
| Mechanical Fixings | <ul style="list-style-type: none"> - Loose bolts and/or mechanical fixings of axis positioning module | <ul style="list-style-type: none"> - Tighten accordingly |
| Electrical Connections | <ul style="list-style-type: none"> - Loose connectors - No I/O signal | <ul style="list-style-type: none"> - Tighten electrical connectors on back of machine - Inspect electrical wires - Replace damaged connector - Replace control board |
| Machine Accuracy / Repeatability | <ul style="list-style-type: none"> - Tip is in an inconsistent dispense position | <ul style="list-style-type: none"> - Check all fixings on positioning module are tight. - Contact local sales agent |
| Overhaul | <ul style="list-style-type: none"> - After full inspection define required spare / service parts needed | <ul style="list-style-type: none"> - Contact local sales agent |

TROUBLESHOOTING

Ways to adapt the quality and finish of the dispense process are described below.

| | |
|--------------------------------|---|
| Fluid Dispense Pressure | <p>An increase in the dispense pressure will increase the flow rate of the fluid material being dispensed from the syringe barrel, cartridge or valve being used for the application.</p> <p>A higher flow rate means, higher volume of fluid material dispensed.</p> |
| Rotation Speed | <p>An increase in rotation speed will reduce the total time that the dispense tip is passing over the dispense location. This will cause less volume of fluid material to be dispensed onto the dispense location.</p> |
| Dispense Angle | <p>An increase in the dispense angle may lead to an over lapping of fluid material. 360°, is one full rotation. 450° is one full rotation plus 90° over lapping of fluid material.</p> |
| Tail Angle | <p>The tail angle can be used to over travel past the point at the end of the dispense angle in a continuous motion. This can drag or pull thicker material to stop a “stringing” affect at the end of the dispense cycle and create a smooth finished joint between the start and end of the dispense bead.</p> |
| Rotation Delay | <p>An increase in the rotation delay will show a rise in the time before the motor starts moving. This will allow material with a higher viscosity or low flow rate to be dispensed onto the work piece before the turntable starts to rotate.</p> |
| Dispense Delay | <p>An increase in this time value will delay the start of the material flow after the turntable has started rotated.</p> <p>This can be adjusted to eliminate the acceleration phase of the turntable and ensure that material is dispensed onto the workpiece at a linear speed, to reduce a buildup of material at the beginning of a dispense cycle.</p> |



NOTES

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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