



EQUIPMENT Operation Manual



Loctite® Digital Multi-Functional Controller Part Number 1022006



TABLE OF CONTENTS

1. PLEASE OBSERVE THE FOLLOWING	3
1.1 EMPHASIZED SECTIONS	3
1.2 ITEMS SUPPLIED	3
1.3 FOR YOUR SAFETY	3
1.4 FIELD OF APPLICATION, (INTENDED USAGE)	3
2. DESCRIPTION	4
2.1 THEORY OF OPERATION	4
2.2 ELECTRICAL CONNECTIONS, REFERS TO FIGURE 1	4
2.2 PNEUMATIC CONNECTIONS, REFERS TO FIGURE 2	6
2.3 FRONT PANEL INTERFACE, REFERS TO FIGURE 3	7
2.4 CONTROLLER INTERFACE, REFERS TO FIGURE 4	8
3. TECHNICAL DATA	9
3.1 ENERGY REQUIREMENTS	9
3.2 DIMENSIONS	9
3.3 PNEUMATIC CONNECTIONS	9
3.4 OPERATING CONDITIONS	9
4. OPERATING THE UNIT	9
4.1 INSTALLATION, REFERS TO FIGURES 1 AND 2	9
4.2 OPERATION, REFERS TO FIGURE 3	10
4.3 CONTROLLER MENU NAVIGATION, REFERS TO FIGURES 4 AND 5	10
4.4 SELECT MODE	10
4.5 SEL. PROGRAM	11
4.6 DELAY SET-X ON	11
4.7 SELECT SEQUENCE	11
4.8 RELAY USAGE	11
4.9 DISP. CONFIRM	11
4.10 REPEAT TIMER	11
5. CARE AND MAINTENANCE	12
6. TROUBLESHOOTING	12
7. DOCUMENTATION	12
7.1 REPLACEMENT PARTS AND ACCESSORIES	12
7.2 SEQUENCE LOGIC	13
7.3 ELECTRICAL DIAGRAMS	15
7.4 PNEUMATIC DIAGRAM	16
8. WARRANTY	17

1. Please Observe the Following

1.1 Emphasized Sections



WARNING!

Refers to safety regulations and required measures that protect the operator or other persons from injury or danger to life.



Caution!

Emphasizes what must be done or avoided so that the unit or other property is not damaged.



Notice:

Gives recommendations for better handling of the unit during operation or adjustment, as well as for service activities.

1.2 Items Supplied

- 1 Loctite[®] Digital Multi-Functional Controller
- 1 24 Volt DC Power Supply
- 1 Foot Switch
- 1 Operation Manual

1.3 For Your Safety

For safe and successful operation of the unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility. Be sure to retain this manual for future reference.



WARNING!

It is the responsibility of the user to ensure that all devices being driven by the Multi-Function Controller are set up in a safe manner.



WARNING!

The manufacturer is in no way responsible for injuries or damage to persons or property resulting from devices being driven by the Digital Multi-Functional Controller.



WARNING!

Before installing this system: For safe and successful operation of the unit, read these instructions completely and carefully. If the instructions are not observed, the manufacturer can assume no responsibility

The unit may be repaired only by a Henkel authorized service technician.

1.4 Field of Application, (Intended Usage)

The Loctite[®] Digital Multi-Functional Controller is a versatile, programmable controller designed to provide on/off digital timing and interface logic for up to three independent functions, pneumatic or electric. A typical use for this unit would be to operate a dispense valve, advancing slide mechanism, and a turntable in a workstation. It also includes an interface for a part present sensor, a dispense confirmation sensor, and can provide interface signals to a host PLC.

2. Description

2.1 Theory of Operation

The Loctite[®] Digital Multi-Functional Controller, when used with a Loctite[®] Dispense Valve and Reservoir, provides a complete automated dispense system. The controller provides digital timing control for any Loctite[®] brand Automatic Dispense Valve, Turntable, or Rotospray system. Dispense time range is from 0.1 to 99.9 seconds in 0.1 second increments for precise and repeatable dispensing.

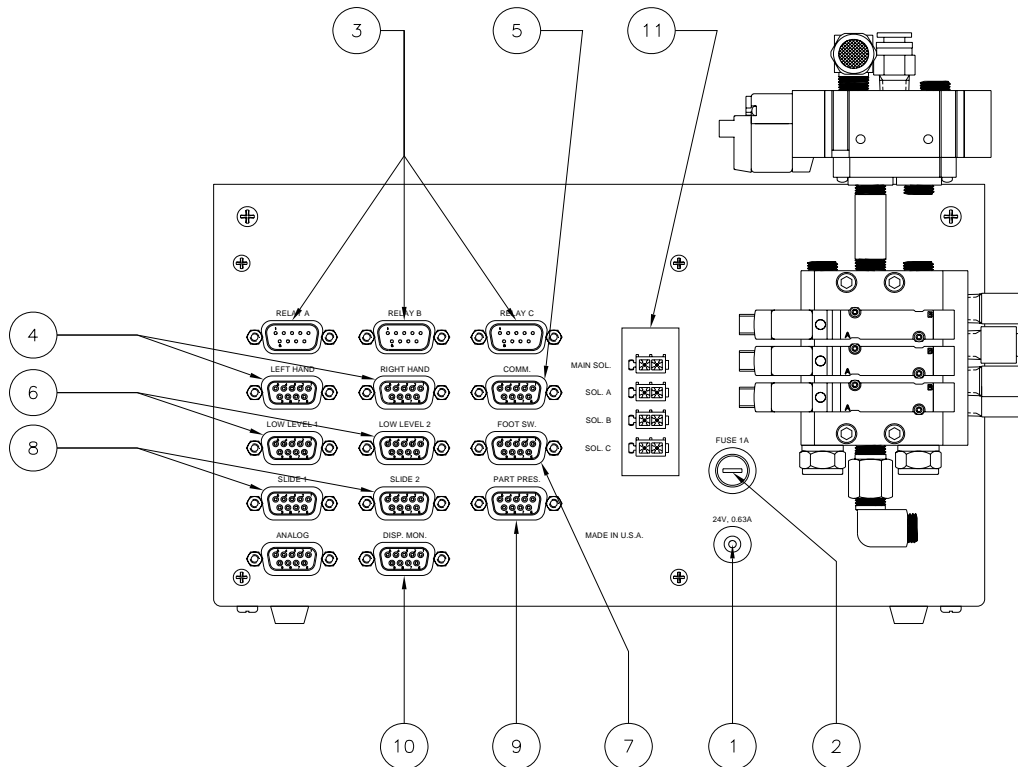


Figure 1, Electrical Connections. See Section 7.3 for Electrical Diagrams

2.2 Electrical Connections, refers to Figure 1

1. Power Input Plug
Plug accepts the jack on the 24 VDC Power Supply bundled with this product.
2. Fuse Holder
Holds one 5x20 mm 1 Amp, 250 Volt, fast acting glass fuse.
3. Relay A, B, and C Connections
These connections allow the Digital Multi-Functional Controller to activate electrical motors, indicator lights, etc. through the closing of relay contacts (see Section 3, Technical Data).
4. Left Hand and Right Hand Connections
For use with Loctite[®] Anti-Tie-Down switches (Item Number 1044248), allows for safe control of the Digital Multi-Functional Controller by removing any pinch points.

2. Description (continued)

Notice:

Once Anti-Tie-Down switches are used to trigger the Digital Multi-Functional Controller, the foot switch and PLC Start signals will be ignored until the system is turned off and restarted.

5. Comm. Connection

Used in conjunction with an external controller, allows the Digital Multi-Functional Controller to send important signals such as Low Level, Time Out, and Dispense Fault to the main control module, while accepting a start signal in return.

6. Low Level 1 and Low Level 2 Connections

If the Digital Multi-Functional Controller is controlling the dispense of product from a Loctite[®] brand Pressure Reservoir with a DC Low Level Detection Sensor, connect the reservoir sensor cable to these ports to monitor the level of adhesive inside the reservoir. Signal transitions from high (24+) to low to indicate Low Level.

7. Foot SW. Connection

The Digital Multi-Functional Controller may be controlled by the Loctite[®] standard Foot Switch (Item Number 97201) supplied with the controller. Plug the foot switch into this connector and actuate the machine.

8. Slide 1 and Slide 2 Connections

The Digital Multi-Functional Controller may be used to control a pneumatic slide. If so, some of the Sequences monitor the slide position via end-stroke switches (12-24 VDC). Connect the two sensors to these ports.

9. Part Pres. Connection

If desired, a 3rd party sensor may be used to detect the presence of a part in the target area for adhesive dispensing. If used, the output from the sensor should be wired to this connection. Signal is high (+24VDC) when part is present.

Notice:

Once a signal from the Part Present sensor is detected, the Digital Multi-Function Controller will always require the Part Present signal to start a cycle. To disable the Part Present sensor, turn the unit off and restart.

10. Disp. Mon. Connection

If desired, the Digital Multi-Functional Controller may be used in conjunction with a Loctite[®] dispense or fluorescence detector. If used, either detector should be wired into this connection.

11. Sol. Connections

These are the four connections from the Digital Multi-Functional Controller to the solenoid bank on the rear panel.

2. Description (continued)

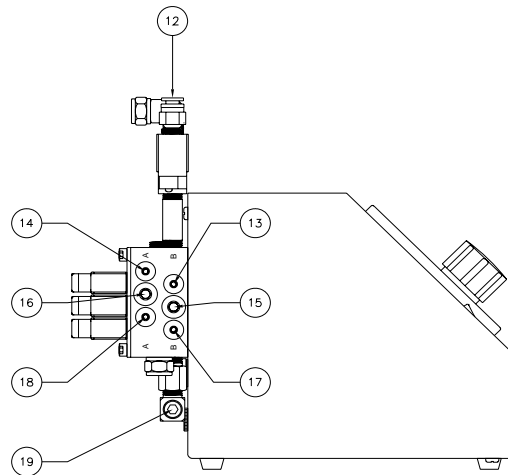


Figure 2, Pneumatic Connections.

2.2 Pneumatic Connections, refers to Figure 2

12. Supply Air Input

Connect the 1/4" tube air supply line to this port.

13. Solenoid A Normally Open Port

This is the Normally Open port for Solenoid A. When Driver A is turned on, this port will close.

14. Solenoid A Normally Closed Port

This is the Normally Closed port for Solenoid A. When Driver A is turned on, this port will open.

15. Solenoid B Normally Open Port

This is the Normally Open port for Solenoid B. When Driver B is turned on, this port will close.

16. Solenoid B Normally Closed Port

This is the Normally Closed port for Solenoid B. When Driver B is turned on, this port will open.

17. Solenoid C Normally Open Port

This is the Normally Open port for Solenoid C. When Driver C is turned on, this port will close.

18. Solenoid C Normally Closed Port

This is the Normally Closed port for Solenoid C. When Driver C is turned on, this port will open.

19. Reservoir Air Supply

If you are using the Multi-Functional Controller with a pressurized reservoir, you remove the plug on this port and connect to the reservoir. Reservoir will only be pressurized when the Multi-Function Controller is powered on.

2. Description (continued)

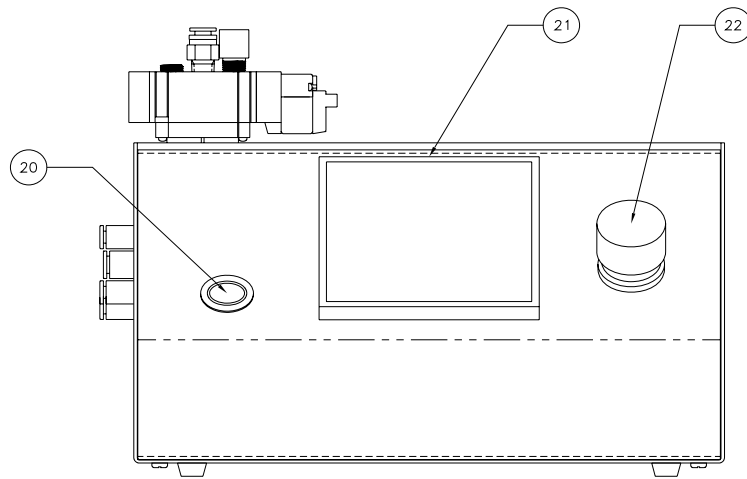


Figure 3, Front Panel Interface.

2.3 Front Panel Interface, refers to Figure 3

20. Main Power Switch

Use to turn the unit on and off.

21. Controller Interface

Main interface for the Multi-Functional Controller. User can access menus, change settings, and view messages.

22. Emergency Stop

This is the system E-Stop. In an emergency situation, depress this button to cut all power to the system. Twist the button to reset the system.



Caution!

If you are using any pneumatic device with a spring return, depressing the E-Stop will cause the device to immediately move back to its home position.

2. Description (continued)

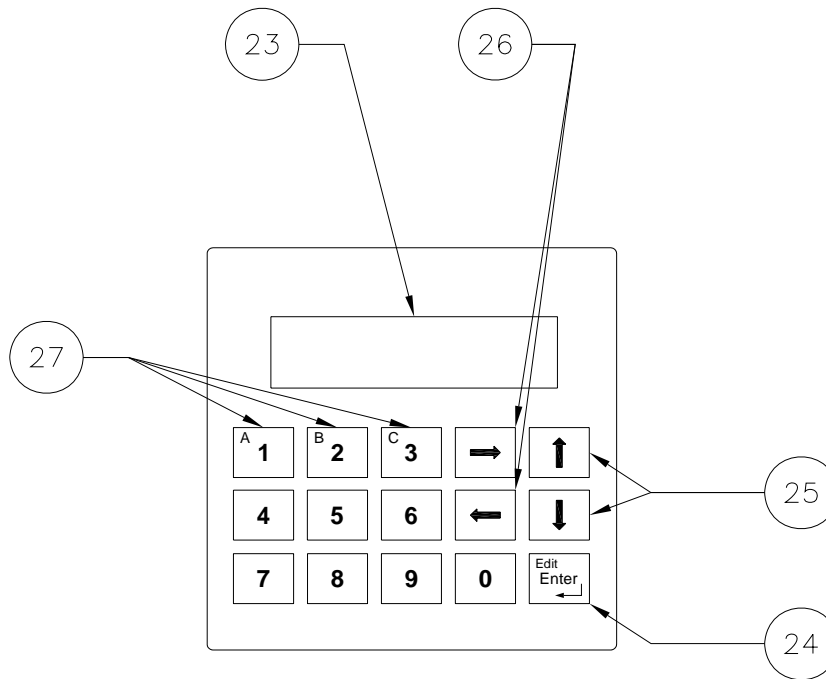


Figure 4, Controller Interface

2.4 Controller Interface, refers to Figure 4

23. Display Screen

View menus during navigation and errors messages.

24. Enter / Edit Key

To change a value in the Configuration Menu, press to enter Edit Mode. Press again to confirm changes.

25. Up / Down Scroll Keys

Use to navigate through the menu screens.

26. Right / Left Scroll Keys

Use to scroll though non-numeric values for a given option.

27. A / B / C Keys

When in Manual Mode, use these three keys to toggle Drivers A, B, and C on and off.

3. Technical Data

3.1 Electrical Requirements

Plug-in Power Supply Included:	Input: 100-240 VAC, 50-60 Hz, 0.6A Output: +24VDC, 0.63A
Fuse:	5 x 20 mm, 1 Amp, Slow Acting
Auxiliary Component Max Draw:	0.5 Amps (Combined)
Relay A, B, C Contacts Rated:	5A @ 250 V
Relay A, B, C Max Current:	5 Amps (Resistive load), 1 Amp (Inductive load)

3.2 Dimensions

Width:	10 3/4 inches
Depth:	9 1/8 inches
Height:	8 inches
Weight:	8 lbs

3.3 Pneumatic Connections

Air Supply:	60 – 100 PSI
Pneumatic Quality:	Filtered 10 um, oil-free, non-condensing

3.4 Operating Conditions

Operating Environment Temperature:	32-122°F (0-50°C)
Operating Environment Humidity	5-95% RH

4. Operating the Unit

4.1 Installation, refers to Figures 1 and 2

1. Place the Multi-Function Controller on a flat sturdy surface.
2. Connect any electrical peripheral devices you wish to use with the Multi-Function Controller to plugs on the back of the Multi-Functional Controller (See Figure 1).



Notice:

The Relay A, B and C Connections have minimal circuit protection. Depending on the electrical devices connected to the Multi-Functional Controller, additional circuit protection may be required. Failure to properly protect the Relay circuits may result in damage to the controller.

3. Connect and pneumatic peripheral devices you wish to use with the Multi-Functional Controller to ports on the back of the Multi-Functional Controller (See Figure 2).
4. Connect the air supply line to the Supply In port on the Multi-Functional Controller (See Figure 2).
5. Plug in the DC power supply into the 24 VDC plug on the back of the Multi-Functional Controller (See Figure 1).

4. Operating the Unit (continued)

4.2 Operation, refers to Figure 3

1. Turn on the On/Off Switch on the front of the Controller.
2. Set Desired operating parameters on the Controller Interface.
3. Using the Keypad (Manual Mode), the Footswitch or the Anti-Tie-Down switches (Auto Mode), activate the machine.

4.3 Controller Menu Navigation, Refers to Figures 4 and 5

To program the Multi-Functional Controller, use the Up and Down Arrows to navigate through the menu of variables. When you have selected a variable you wish to change, press Enter to begin to edit. If the value is numerical, use the numeric keypad to change the value, otherwise, use the Left and Right Arrows to cycle through the listed options. When you have finished changing the values, press Enter again to save the value to the variable.

4.4 Select Mode

The Multi Functional Controller may be used in either Auto or Manual Mode. In Manual Mode, the user can individually control Drivers A, B and C by depressing the corresponding button on the control pad. In Auto Mode, the controller will activate on a start signal from either the Foot Switch connection or the PLC Comm. Port. Before entering Auto Mode, be sure Drivers A,B, and C are “off”.

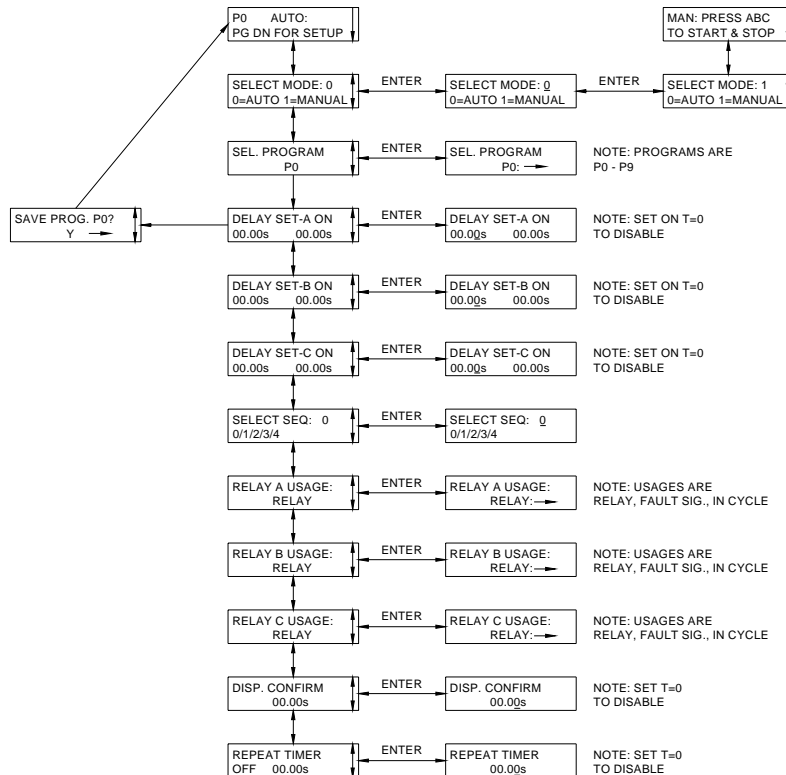


Figure 5. Menu Navigation

4. Operating the Unit (continued)

4.5 Select Program

The Digital Multi-Functional Controller allows the user to save up to 10 Programs (0-9) which store values for every variable in the system. This allows the user to utilize the Digital Multi-Functional Controller for several different operations with minimal effort to convert from one sequence to another.

4.6 Delay Set-X ON

For each of the three Drivers (A, B, and C), there are two configurable variables: the Delay time, and the On time. The Delay sets the amount of time the Driver will wait to start once its trigger signal has occurred. The On time sets the amount of time the Driver will remain On once it has been triggered.

4.7 Select Sequence

The Digital Multi-Functional Controller has 5 different Sequences, each with its own set of logic and intended uses. See Section 7.2 for the logic diagrams for each Sequence.

4.8 Relay Usage

While each of the relays is normally controlled by its Driver, any of the 3 relays may be used as a signal for an external PLC. The two available signals are “In Cycle”, which closes the relay contact when the Digital Multi Functional Controller is operating, and “Fault”, which closes the relay contact when the Digital Multi Functional Controller has encountered an error.

4.9 Dispense Confirm

The Digital Multi-Functional Controller may be used with a Fluorescence Detector (P/N 98083) or an In-Line Flow Monitor (P/N 97211) to confirm that a dispense occurred properly. To enable, set the amount of time after sequence initialization the Digital Multi Functional Controller must wait to see the dispense signal transition to high (+24VDC). If signal transition is not detected within this allotted time, Dispense Fault will trigger.

4.10 Repeat Timer

For continuous repetitive dispensing, set a delay time on the Repeat Timer. As long as the Start Signal from the Foot Switch or the PLC Comm. Port is held high (+24VDC), the Digital Multi-Functional Controller will repeat the sequence after this delay. The Repeat Timer set time can also be used to lock out a start signal until the allotted time has passed.

5. Care and Maintenance

This unit requires no special care or maintenance.

6. Troubleshooting

Type of Malfunction	Possible Cause	Correction
Anti-Tie-Down Switches do not work.	<ul style="list-style-type: none">- Selected Sequence is not 1 or 2.- Improper wiring of ATD Switches.- Defective ATD switches.	<ul style="list-style-type: none">• Change Sequence to 1 or 2.• Refer to Wiring Diagram.• Call 800-562-8483.
Foot Switch does not work.	<ul style="list-style-type: none">- ATDs are turned on.- Fault has not been exited.	<ul style="list-style-type: none">• Turn off Digital Multi-Functional Controller and unplug ATDs.• Press Enter to exit Fault condition.
Power Switch does not turn unit on.	- E-Stop Switch is off.	• Twist E-Stop Switch.
	- Controller not plugged in.	• Plug DC line cord into wall and Digital Multi-Functional Controller.
	- Fuse is blown.	• Replace fuse with 5x20mm 1 Amp slow blow fuse.
	- Defective Switch.	• Call 800-562-8483.

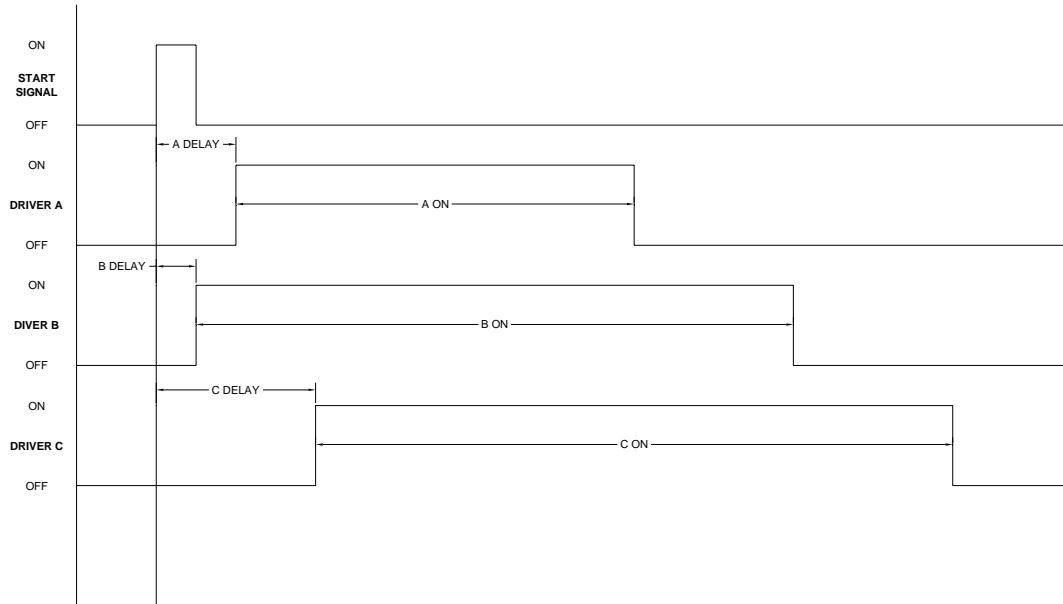
7. Documentation

7.1 Replacement Parts and Accessories

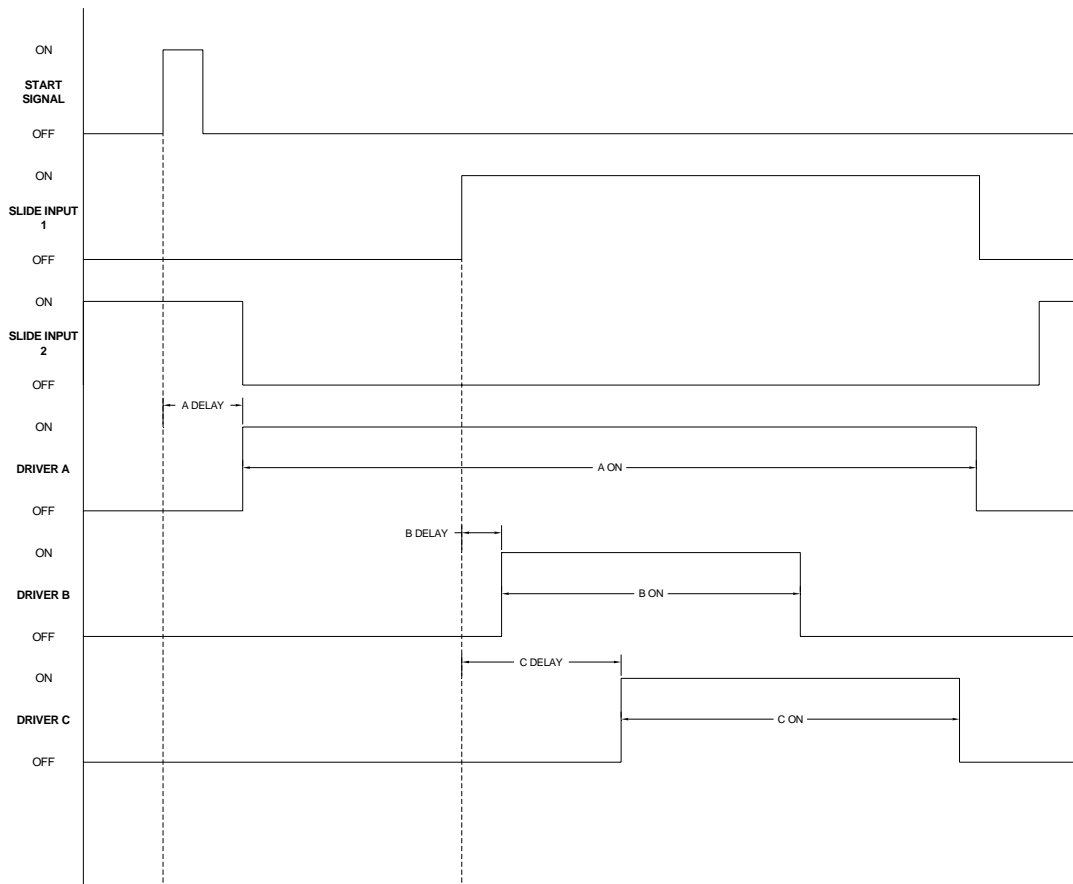
Loctite Part Number	Description
1044248	Loctite [®] Anti-Tie-Down switch set
97201	Loctite [®] Foot Switch
960355	Loctite [®] 24 VDC Universal Power Supply
1044249	Loctite [®] Digital Multi-Functional Controller Plug Kit

7. Documentation (continued)

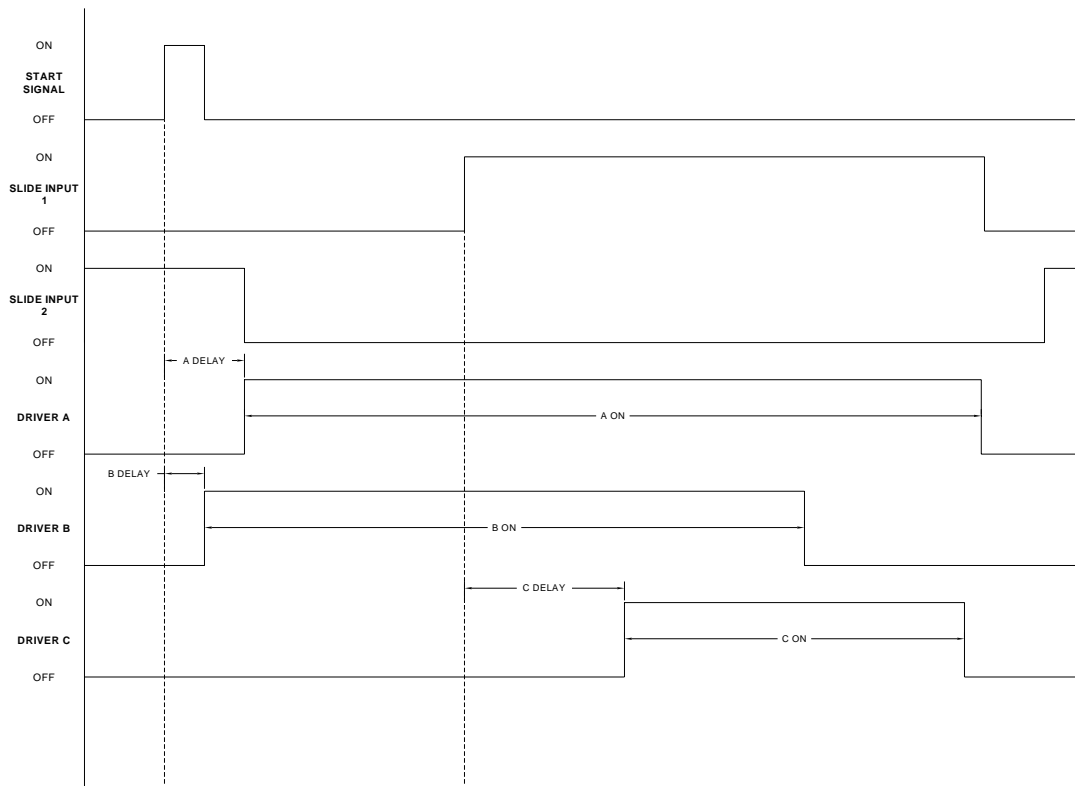
7.2 Sequence Logic



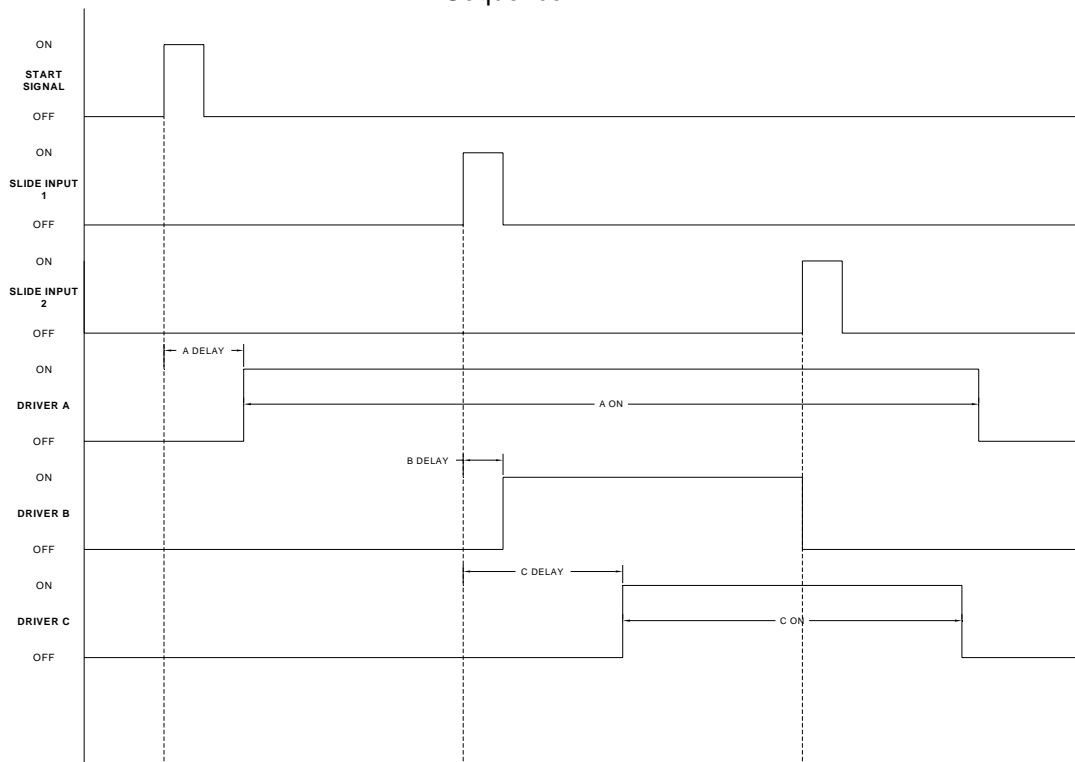
Sequence 0



Sequence 1

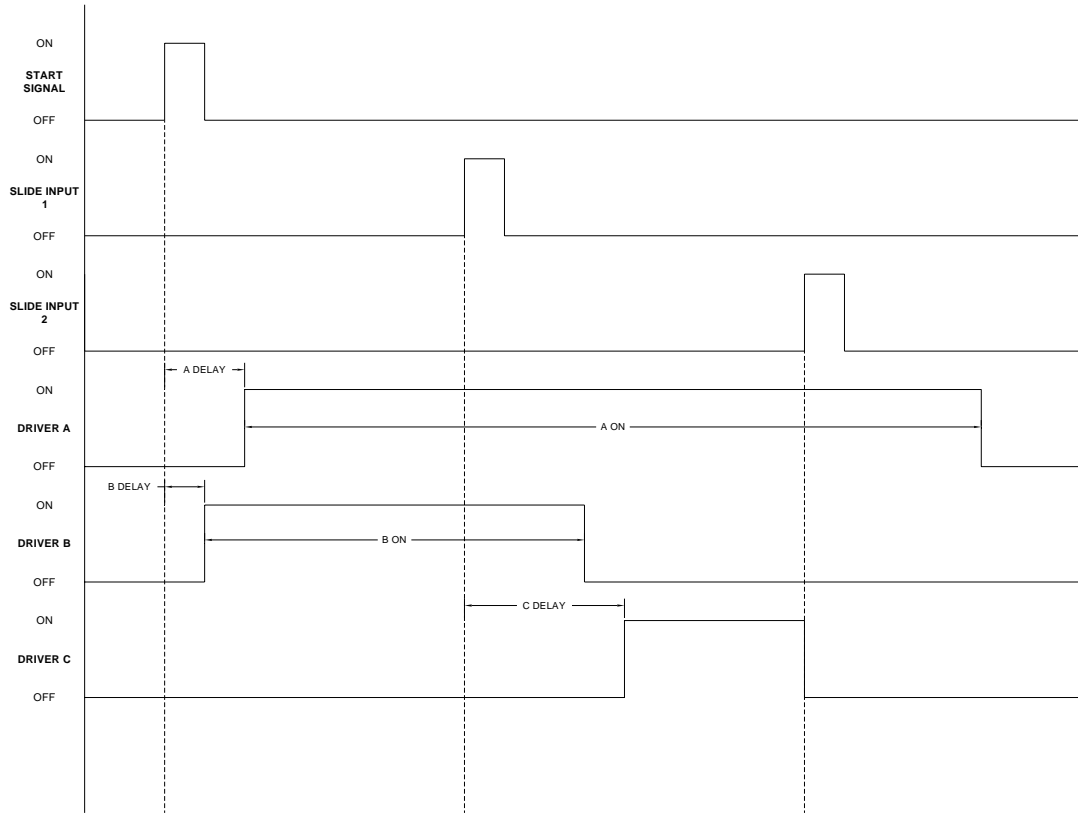


Sequence 2



Sequence 3

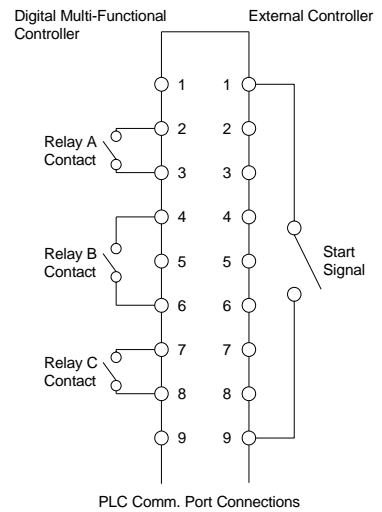
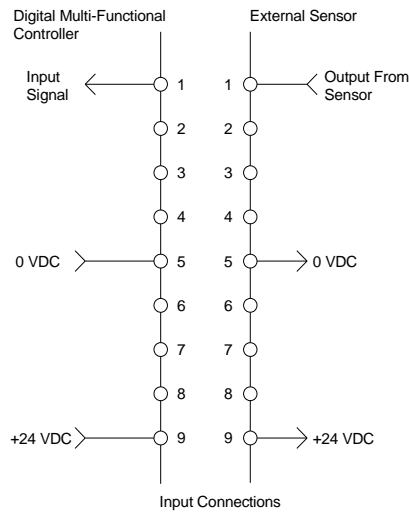
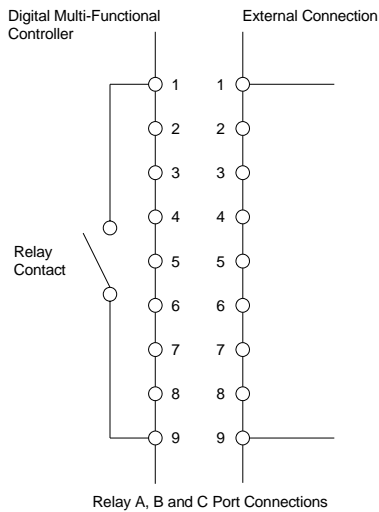
(Note: Driver B On Timer must be set longer than time until Slide 2 Signal to avoid Fault)



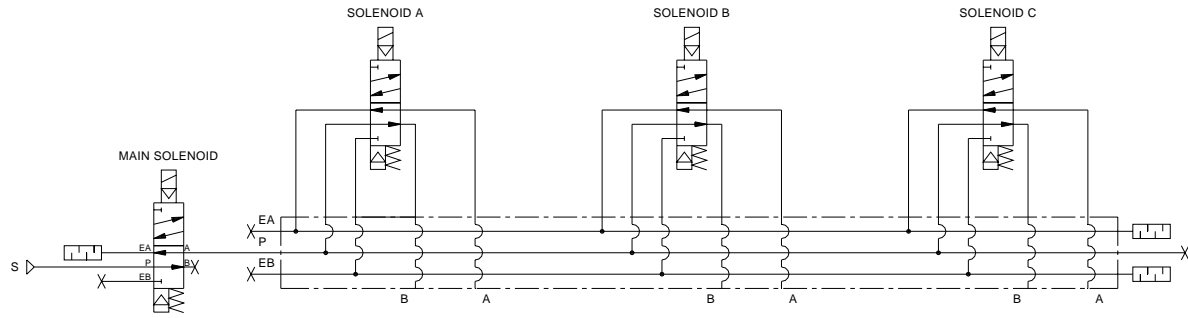
Sequence 4

(Note: Driver C On Timer must be set longer than time until Slide 2 Signal to avoid Fault)

7.3 Electrical Diagrams



7.4 Pneumatic Diagram



8. Warranty

Henkel expressly warrants that the product referred to in this Instruction Manual for the Digital Multi-Functional Controller P/N 1022006 (hereafter called "Product") shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, as its option, to replacing this Product which is shown to be defective in either materials or workmanship or to credit the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefore by the user). The purchaser's sole and exclusive remedy for breach of warranty shall be such replacement or credit.

A claim of defect in materials or workmanship in the Product shall be allowed only when it is submitted in writing within one month after discovery of the defect or after the time the defect should reasonably have been discovered and in any event, within twelve (12) months after the delivery of the Product to the purchaser. This warranty does not apply to perishable items, such as fuses. No such claim shall be allowed in respect of a product which has been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained. In the event of unauthorized modification of the Product including, where products, parts or attachments for use in connection with the Product are available from Henkel, the use of products, parts or attachments which are not manufactured by Henkel, no claim shall be allowed.

No Product shall be returned to Henkel for any reason without prior written approval from Henkel. Product shall be returned freight prepaid, in accordance with instructions from Henkel.

NO WARRANTY IS EXTENDED TO ANY EQUIPMENT WHICH HAS BEEN ALTERED, MISUSED, NEGLECTED, OR DAMAGED BY ACCIDENT, OR IF THE SYSTEM WAS USED TO DISPENSE ANY LIQUID MATERIAL OTHER THAN LOCTITE® PRODUCTS.

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