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3. DIGISPENSE 10 CONTROLLER MODULE

3.1 DESCRIPTION

The Digispense 10 Controller Module, hereafter referred to as the Controller Module, contains all the control, monitoring, and interface components for the dispensing operations. The Controller Module measures 14 3/4" wide, 11 3/4" deep, 5 1/4" high (feet included) and weighs approximately 17 pounds. The operator controls are located on the front panel and the interface connections are located on the rear panel.

3.1.1 Front Panel Controls & Indicators (Figure 3.1)

The front panel contains the switches and pushwheels for controlling the system. The following standard switches and pushwheels are located on the front panel.

Switches
- 2 DISP/PRIME
- 3 RESET
- 4 FWD/REV
- 5 START/STOP
- 7 1/0 (On/Off)

Pushwheels
- 1 VOLUME STROKES
- 6 RATE

3.1.1.1 VOLUME STROKES Pushwheel (Figure 3.1 Item 1)

This 3 digit, pushwheel switch determines the number of pump rotations per cycle.

Pressing the "+" will increase the selected number by 1 and pressing "-" will decrease the selected number by 1. This allows the user to select any number of pump rotations from "000" to "999".

3.1.1.2 DISP/PRIME Switch (Figure 3.1 Item 2)

This 2-position, illuminated, rocker switch selects either "DISP" (dispense) or "PRIME" (continuous cycle) mode.

A yellow indicator in the switch illuminates on the active switch setting.

3.1.1.3 RESET Switch (Figure 3.1 Item 3)

This illuminated push-button switch will reset the Controller Module after a fault has occurred.

Pressing the switch, turns off the RESET LED and resets the system. If the system immediately faults again, refer to Table 3 'Common Operation Problems and Solutions' in Chapter 2 'Operation'.

3.1.1.4 FWD/REV Switch (Figure 3.1 Item 4)

This 2-position, illuminated, rocker switch selects the liquid flow direction "FWD" (forward) or "REV" (reverse).

A yellow indicator in the switch illuminates on the active switch setting.

3.1.1.5 START/STOP Switch (Figure 3.1 Item 5)

This momentary, illuminated rocker switch activates pump operation when "START" is pressed and halts pump operation when "STOP" is pressed.

A green indicator illuminates in the switch after pressing "START".

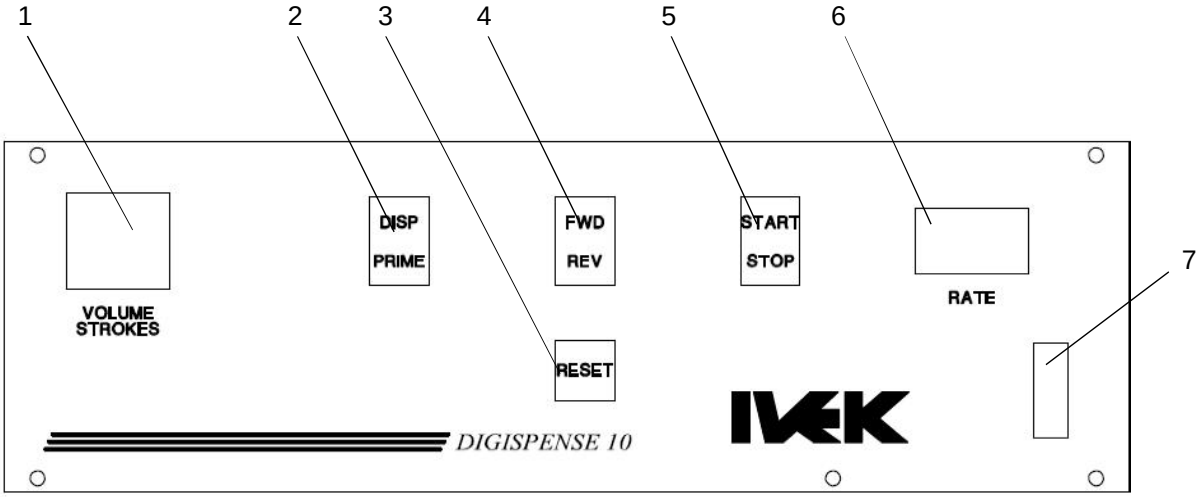

Figure 3.1 Digispense 10 Controller Module Front Panel

A red indicator illuminates in the switch after pressing "STOP".

3.1.1.6 RATE Pushwheel (Figure 3.1 Item 6)

This 3 digit, pushwheel switch determines the dispense or prime rate by directly controlling the speed of the rare earth motor drive. The minimum is "0" and the maximum is the maximum RPM (revolutions per minute) of the motor. (see the Title Page section of this manual)

Pressing the "+" will increase the selected number by 1 and pressing "-" will decrease the selected number by 1. This allows the user to select the optimum motor speed for the application.

3.1.1.7 1/0 Switch (Figure 3.1 Item 7)

This 2-position, illuminated, rocker switch turns controller main power (AC input) "ON" (1) or "OFF" (0).

A green indicator light in the switch illuminates when controller power is "ON".

3.1.2 Rear Panel Detail (Figure 3.2)

The rear panel contains the interface connections for the system. The following components are located on the rear panel.

1 Power Entry Module
2 Trigger In Terminal Strip
3 Motor Cable Connector

3.1.2.1 Power Entry Module (Figure 3.2 Item 1)

The power entry module contains a receptacle for a standard IEC power cord, a voltage selector switch and main fuse holder.

CAUTION

Before plugging in the system, insure the line voltage setting appearing in the window agrees with the available line voltage. Damage to the equipment could result if the two voltages do not match.

Refer to the Title Page section of this manual to determine the power connection and fuse specifications for this Controller Module.

The design of the power entry module requires the line cord be disconnected before either the voltage select switch is changed or a line fuse is removed. Perform the following steps if it is necessary to change the setting of the line voltage select switch. (Refer to Figure 3.4)

1. Disconnect the line cord at the power entry module and open its cover.

2. Remove the selection cam from the unit and replace it oriented so the desired voltage will appear in the window when the cover is closed.

CAUTION

Rotating the voltage select cam while it is in the module may damage the module.

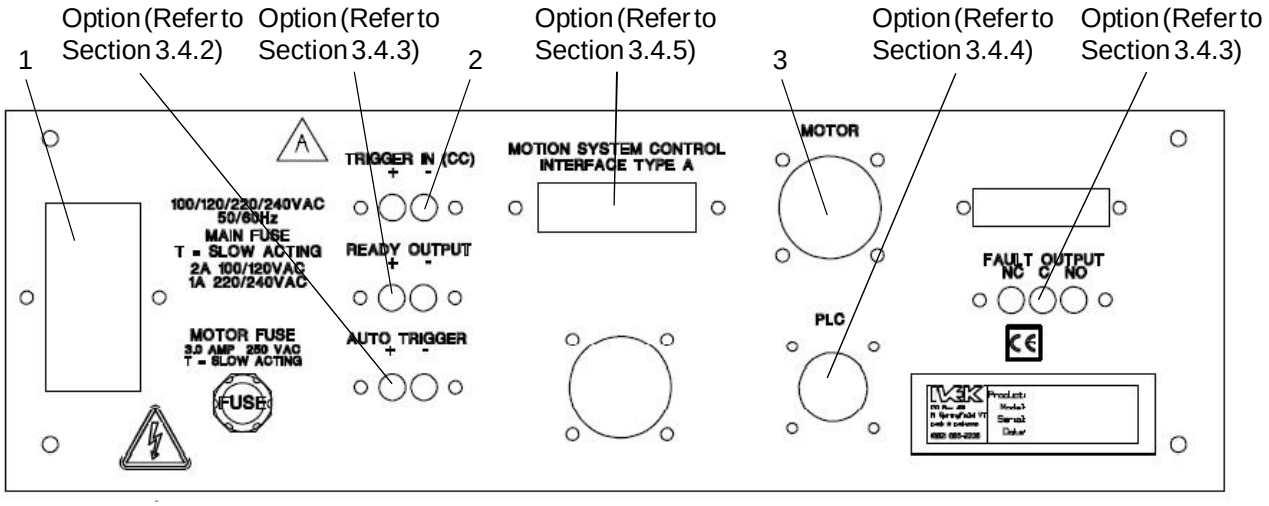

Figure 3.2 Digispense 10 Controller Module Rear Panel

3. With the voltage select cam in the proper position, close the cover and replace the line cord. If the cover does not completely close, open the cover and slightly reposition the voltage select cam.

3.1.2.2 TRIGGER IN Terminal Strip (Figure 3.2 Item 2)

The TRIGGER IN (CC) terminal strip has two screw terminals (+/-) used for triggering a Dispense or Meter. A signal at this terminal strip initiates pump operation (dry contact or solid state). The signal rating is 50mA at 12VDC.

NOTE

The front panel mounted START switch or a contact closure wired through the rear panel terminal strip will activate the pump.

3.1.2.3 Motor Cable Connector (Figure 3.2 Item 3)

The motor cable connector (Amp Series One CPC 14 pin) is used for making the electrical connections to the Motor/Base Module.

CAUTION

Never connect or disconnect the cable from this connector while power is on. Damage to the equipment may result.

3.2 OPERATION

The Controller Module provides all the control, monitoring, and interface functions for the dispensing operations. Controlled rapid acceleration and deceleration of the motor and rotation monitoring are some of the functions required to properly drive precision metering pumps.

The Controller and Motor/Base Modules are electrically connected together by a cable. The pump is activated when either the START/STOP switch is switched to START or a trigger signal is received through the terminal strip. The operation of the Controller Module is divided into three sections; Motor Control, Priming/Emptying, and Dispensing operation.

CAUTION

This DC brushless motor Controller Module cannot be used with a stepping motor Motor/Base Module. The opposite is also true.

3.2.1 Motor Control

The rotation of the rotary pump is monitored by a spindle sensor that provides three functions; Volume Strokes, Stopped Location, and Stall Detect. The sensor is mounted on the frame of the Motor/Base Module and detects a target mounted on the spindle.

3.2.1.1 Volume Strokes

The spindle sensor counts the revolutions of the pump to ensure the requested number of revolutions (volume strokes) has been completed. The sensor signals the brushless DC motor drive circuitry to decelerate when the required count is reached. This assures the stopped location is the same each time.

3.2.1.2 Stopped Location

The spindle sensor stops the piston during the intake stroke of the pump. The sensor signals the brushless DC motor drive circuitry to decelerate, thereby insuring the position at the end of the dispense is based on a sensed position, and not on the accumulation of motion commands to the motor drive circuitry.

If the piston is at a random position, such as after reassembly due to cleaning, the piston will be properly indexed to stop during the intake stroke following the completion of the first dispense cycle (with no faults). By stopping during the intake stroke, variations in the exact stopping position will not effect dispense accuracy.

3.2.1.3 Stall Detect

A motor stall condition is generated if a signal from the spindle sensor is not detected for each revolution commanded to the motor. In a brushless DC motor system, a stall has occurred if a motor rotation is not detected when a revolution has been commanded without a subsequent signal from the spindle sensor.

When a stall occurs, it will continue to attempt to resume operation. A fault is generated if a four second stall of the motor is detected and operation of the corresponding channel ceases.

3.2.2 Priming

In Prime mode, the rate of liquid flow is directly controlled, but the volume of liquid displaced is not directly controlled. The volume of liquid dispensed is the result of the Pump Module calibration setting, rate and the length of time the system is activated.

3.2.2.1 Controller Setup

Set the switches on the front panel to the following settings:

- The 1/0 power switch to "0". (not required)
- The DISP/PRIME switch to "PRIME".
- The FWD/REV switch to "FWD".
- The RATE pushwheel setting is dependent on the application. As a general guideline, start with 500 (50%). The rate during priming may be the same, higher, or lower than the rate during dispensing, based on the application.
- The VOLUME STROKES pushwheel setting is not critical for this mode but must be set for a value other than "000". The only effect would be the length of time the motor continues to operate if the prime operation is stopped by switching the DISP/PRIME switch to "DISP".

3.2.2.2 Priming Operation

Switch the 1/0 power switch to "1".

Start Priming mode by using either the START/STOP switch or asserting a trigger signal at the terminal strip.

Switching the START/STOP switch to "START" will start the priming operation. The motor will start and continue to operate until the STOP button is pushed or the DISP/PRIME switch is moved to DISP position. If a PRIME operation is terminated by moving this switch to the DISP position, the motors will continue to run for the number of rotations set on the VOLUME STROKE pushwheel. Stopping in this fashion (not using the STOP push-button) will properly position the dispense mechanism, reading it for immediate use.

3.2.3 Dispensing

Dispense is used to deliver a discrete, specific volume of liquid.

The Controller Module provides an accurate adjustment of both the rate and volume of the dispense. The exact volume of liquid dispensed is dependent on the volume setting and the configuration of the Pump Module.

3.2.3.1 Controller Setup

Set the switches on the front panel to the following settings:

- The 1/0 power switch to "0". (not required)
- The DISP/PRIME switch to "DISP".
- The FWD/REV switch to "FWD".
- The RATE pushwheel setting is dependent on the application. As a general guideline, start with "500". The rate may need to be higher or lower, based on the application.
- The VOLUME STROKES pushwheel setting, combined with the pump displacement, determines the volume dispensed for each trigger. Since the VOLUME STROKES setting determines the number of revolutions of the pump, and the pump displacement determines the volume per pump revolutions, multiplying the two will produce the total volume dispensed for each Trigger.

3.2.3.2 Dispensing Operation

Switch the 1/0 power switch to "1".

Set the VOLUME STROKES pushwheel to the desired number.

Start Dispensing mode by either switching the START/STOP switch to "START" or asserting a trigger signal at the terminal strip.

The operation is initiated at the false-to-true transition on the trigger signal. The length of the trigger signal has no effect provided the true-to-false transition is clean with no contact bounce. Contact bounce at the end of a trigger signal longer than the duration of the dispense can initiate a second dispense cycle.

The system will continue to operate until the number of volume strokes set on the VOLUME STROKES pushwheel is reached. The spindle sensor counts the revolutions of the spindle and initiates a signal when the VOLUME STROKES pushwheel setting is reached.

3.2.4 Reverse/Emptying

Reverse/Empty is used to change the flow direction during dispense or empty the pump inlet tubing, pump chamber, and outlet tubing of liquid when priming and(or) dispensing operations are completed. This mode can be used to return liquid to the supply reservoir rather than forward into a waste container.

The rate of liquid flow is directly controlled, but the stroke selection is not directly controlled. The volume of liquid metered is the result of the rate, the length of time the system is activated and the amount of fluid being displaced by the Pump Module per motor cycle.

3.2.4.1 Controller Setup

NOTE

It is not necessary to shut the power off before switching to the Empty mode.

Set the switches on the front panel to the following settings:

- The RATE pushwheel setting effects the rate the system will empty. It is often acceptable to leave this at the setting used in Dispense mode.
- The VOLUME STROKES pushwheel setting is not critical for this mode, but must be set for a value other than "000". The only effect of this setting is the length of time the motor continues to operate if the priming operation is stopped by switching the DISP/PRIME switch to "DISP"

3.2.4.2 Emptying Operation

Switch the FWD/REV switch to "REV".

Switch the DISP/PRIME switch to "PRIME".

Switching the START/STOP switch to "START" or Asserting a false-to-true transition trigger at the terminal strip will start the emptying operation. The motor will start and continue to operate until the Stop button is pressed or the DISP/PRIME switch is moved to the DISP position. If an emptying operation is terminated by moving the DISP/PRIME switch to the DISP position, the motors will continue to run for the number of rotations set on the VOLUME STROKES pushwheel.

3.2.5 Reset Switch/Fault Indicator

The reset switch/fault indicator signals the operator when a stall fault has occurred. A fault is generated if a motor rotation is not detected within a four second period. When a fault occurs, the RESET switch illuminates and a fault output is generated.(Fault outputs will only be generated if the Model Number contains B, D or E on the Logic Interface.)

The output can be designed to either inhibit further dispensing, alert the operator, or provide a reject signal for integrated process control.

The RESET switch illuminates when a fault has occurred. Pressing the switch, turns off the RESET LED and resets the system. If the system immediately faults again, refer to Table 3 'Common Operation Problems and Solutions' in Chapter 2 'Operation'.

3.3 INSTALLATION

General operating practices provide the best guidelines for locating the components of the system. The Controller Module should be located for ease of use during all phases of operation and maintenance.

3.4 OPTIONS

IVEK Corporation offers a variety of options to best meet the customers needs. Following is a list and description of available options for the Controller Module. Refer to the Title Section of this manual for the list of options provided with this system.

3.4.1 23 Frame, 3000 RPM, Fast 1 Rev

This option modifies the system for faster 1 revolution dispenses. Up to 480 discreet single revolutions per minute may be achieved. The effect of this option is to reduce the dynamic, steady-state range of the RATE thumbwheel switch.

In the DISPENSE mode with a VOLUME STROKES setting of 1, the RATE thumbwheel range has effect up to the maximum value of ‘999’. As the RATE thumbwheel value is increased, it will decrease the dispense time for the single revolution.

Operating in PRIME mode and using large VOLUME STROKES settings in DISPENSE mode, the nominal range is up to ‘350’ on the RATE thumbwheel. A RATE thumbwheel setting of ‘350’ will operate the motor at a speed of 3000 RPM. The motor will go slightly faster above a setting of ‘350’ but the exact top speed cannot be determined. Typically the motor will reach a maximum speed of roughly 3600 RPM at a RATE thumbwheel setting of ‘500’. Setting above this will not change the motor speed for the PRIME mode or large dispense volumes.

3.4.2 Stainless Steel

A stainless steel case is available for applications where a powder coat fininsh is not acceptable.

3.4.3 PLC (OI)

The PLC interface option replaces the external contact closure trigger signal with a number of signals, including the

trigger. This option comes equipped with a Reset Switch/ Fault Indicator.

3.4.3.1 Signal Description

Following is a list of the signals and their associated descriptions.

TRIGGER IN - A signal applied to this input will trigger operation in Dispense or Prime mode. Operation is initiated at the false-to-true transition of this signal, if the Controller Module is not faulted, with any further activities on the signal ignored until the operation is completed.

READY OUT - The ready output signal indicates the active/ idle state of the Controller Module. The Controller Module is ready to accept a trigger, if the Controller Module is not faulted, when this signal is true. The signal will remain false during any operation or if it's faulted.

FAULT OUT - The fault output signal indicates that a fault has been detected in the operation of the Motor/Base Module. This output is complemented, i.e., the output is true when no fault exists, and is false when the controller is faulted. A four second stall during an operation is required to activate this signal.

3.4.3.2 Signal Levels

All signals are optically isolated. The power for all signals is provided by the customer's equipment.

All inputs accept a 24 VDC signal and require 20 mA.

All outputs conduct when the signal is 'true' and do not conduct when the signal is 'false' (see FAULT OUT). Outputs can switch a signal of up to 24 VDC and 50 mA. The output consists of the emitter and collector connections to an IC opto-isolator.

3.4.3.3 Connections

All connections are through a 9 pin circular plastic connector, with the mating connector and pins supplied with the unit. The connector on the controller is an AMP CPC series 206705-1. Table 3.1 contains a list of each pin in the connector and its associated signal.

Table 3.1 PLC Pin Configuration

PIN	SIGNAL	PIN	SIGNAL
1	TRIGGER IN +	6	FAULT OUT -
2	TRIGGER IN -	7	(not used)
3	READY OUT +	8	(not used)
4	READY OUT -	9	(not used)
5	FAULT OUT +		

3.4.4 Motion System Interface Type A

The Motion System Interface Type A option allows convenient connection to a number of motion control systems. This interface is required on Controller Modules used in conjunction with an IVEK Linear Striper or some Cartesian robots IVEK utilizes. The connector for this interface is located on the rear of the Controller Module.

3.4.4.1 Signal Description

Following is a list of the signals and their associated descriptions.

TRIGGER IN - A signal applied to this input will trigger operation in Dispense or Prime mode. Operation is initiated at the false-to-true transition of this signal, with any further activities on the signal ignored until the operation is completed.

READY OUT - The ready output signal indicates the active/ idle state of the controller.

FAULT OUT - The fault output signal indicates that a fault has been detected in the operation of the Actuator Module. This output is complemented, i.e., the output is true when no fault exists, and is false when the controller is faulted.

3.4.4.2 Signal Levels

All inputs accept a contact closure or isolated transistor output. The negative side of the input signals are connected inside the Controller Module to logic supply common. The customer device connected to an input signal must be capable of switching a 12 VDC signal of 20 milliamps with an 'off' state leakage of less than 0.5 milliamps. The Controller Module supplies the power source for the input signals.

All outputs conduct when the signal is 'true' and do not conduct when the signal is 'false' (see Fault Out). Outputs can switch a signal of up to 24 VDC and 50 milliamps. The output consists of the emitter and collector connections to an IC opto-isolator. All outputs of opto-isolator have the emitters tied together and connected to pin 18. This configures the

IVEK outputs as sinking the customer provided power source. The output signals are isolated from the input signals. The customer provides the power source for output signals.

Table 3.6 Controller Module Interface - Pin Assignments

PIN	SIGNAL
5	/FAULT OUT
6	READY OUT
14	TRIGGER IN +
18	OUTPUT COMMON
23	TRIGGER IN -

3.4.5 CC Ready and Fault Outputs

This option adds contact-closure output signals for "READY" and "FAULT" to the standard contact-closure trigger input.

The "READY" output contacts are closed when the controller is "READY", meaning it is not operating and ready for a trigger input. The "READY" output contacts are open when the controller is either dispensing or metering. When the controller is turned off, the "READY" contacts are open. During stalls and when the controller is faulted, the "READY" contacts are open. When the controller is idle, and ready to accept a trigger, the "READY" contacts are closed.

The "FAULT" output contacts change state when the controller has faulted. Both normally-open and normally-closed contacts, sharing one common connection, are provided for the "FAULT" output. The "NO" (normally open) contact is open when a fault exists, is open when the power is off, and is closed when no fault exists. The "NC" (normally closed) contact is closed when a fault exists, is closed when the power is off, and is open when no fault exists.

Refer to section 3.7 for the signal specifications.

3.4.6 Continuous Auto Trigger W/Dwell

This option adds automatic retriggering of the system with an adjustable 'wait' time between dispenses. A terminal strip is added to the rear panel and a dwell vernier is added to the front panel. A locking action foot switch is recommended for activation. The foot switch can either be active (depressed) or inactive (released). The dwell vernier is a ten turn potentiometer/dial with a range of "000" to "999".

When the foot switch is released, the system will cycle as described in Section 3.2 'Operation'. When this switch is depressed, the system will continuously retrigger until interrupted.

The dwell vernier adds an adjustment for a time period at the end of the dispense during which the system is in a 'wait' state. During this period of time, any trigger signals (including transitions) are ignored.

The dwell control can be used to synchronize other machine operations, reduce susceptibility to trigger noise, or allow control of the repetition rate.

The vernier dial provides a linear scale across the entire range. A setting of "999" on the vernier represents 2 seconds of delay time. A setting of "000" is approximately 0.5 seconds.

3.4.7 Totalizer

A totalizer provides a digital display of the total number of motor revolutions during the Dispense mode. The totalizer will not count revolutions when the controller is in the Reverse or Prime modes. A reset push-button allows the operator to reset the counter when required.

3.5 MAINTENANCE

No periodic maintenance is required on the Controller Module, beyond standard practices for electronic equipment.

3.5.1 Assembly/Disassembly Procedures

The Controller Module contains the following replaceable parts.

- Switch LED's
- Motor Fuse
- Main Power Fuse

3.5.1.1 Switch LED's (Figure 3.1 Items 2,3,4)

The LED's in the DISP/PRIME, FWD/REV and START/STOP switch are replaceable. (Refer to Figure 3.3 images 1,2,3 and 4)

Disassembly

1. Use your fingers to remove the switch cover. (Image 1 to 2)
2. Locate the metal pull tab and pull out slowly until the LED comes out. (Image 2 to 3)

Assembly

1. Locate the "+" side of the bulb (upper LED sockets have the "+" on the right and lower LED sockets have the "+" on the left) and place into the socket. (Image 4)
2. Snap the switch cover into place. (Image 1)

3.5.1.2 Main Power Fuse (Figure 3.2 Item 1)

The main power fuse, located in the power entry module on the rear panel, is replaceable. The proper fuse value is described in the Title Page section of this manual. (Refer to Figure 3.4)

Disassembly

1. Remove the power cord.
2. Using a small flat blade screwdriver, open the power entry module's cover.
3. Slide the fuse tray out and remove the fuse.

Assembly

1. Install the new fuse into the fuse tray and slide the tray in. The arrow on the fuse holder should point to the right.
2. Close the power entry module's cover.
3. Connect the power cord.

3.5.1.3 Motor Fuse (Figure 3.2)

The motor fuse, located on the rear panel, is replaceable. The proper fuse value is described on the rear panel.

Disassembly

1. Remove the power cord.
2. Push in slightly and turn counter-clockwise to remove the fuse holder.
3. Slide the fuse out of the fuse holder.

Assembly

1. Place the fuse into the fuse holder.
2. Insert the fuse and fuse holder into the Controller Module and turn clockwise until it stops.
3. Connect the power cord.

3.6 PROBLEM GUIDE

Table 3.3 contains a list of possible problems, causes and solutions for the Controller Module.

WARNING

Hazardous voltages exist inside the Controller Module. Under no circumstances should the Controller Module be opened. There are no user serviceable parts inside. Any unauthorized access to the inside will void the warranty.

3.7 SPECIFICATIONS

Trigger Signal Requirements (Standard):
Mechanical contact closure or solid state
Pulse width between 10 and 100 milliseconds
False - to - True transition
Signal rating is +12 VDC @ 50mA min.

Voltage Trigger Requirements (Option):
+24 VDC @ 20mA max
Pulse width between 10 and 100 milliseconds

Length of Dwell:	(Standard)	Fixed:	50msec.
	(Option)	Variable:	0.5sec - 2sec.

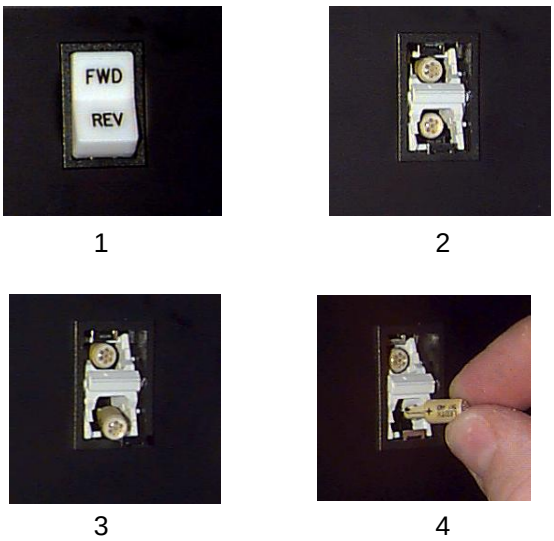

Figure 3.3 LED Disassembly/Assembly

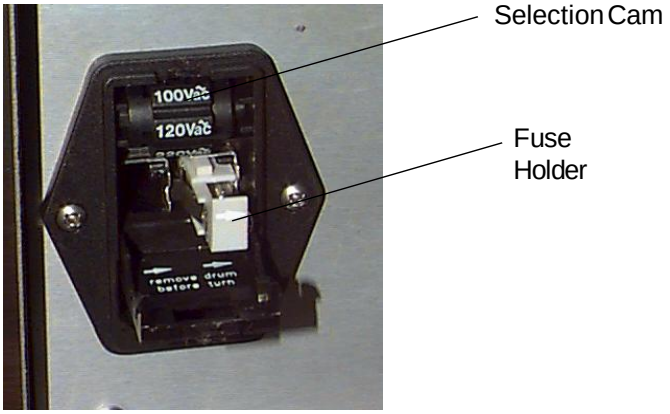

Figure 3.4 Power Entry Module

Motor Speed:
Specified in Title Page section of this manual

Contact Closure Output:

Max. Switching Power:	60W 110VA
Max. Switching Voltage:	220V AC, DC
Max. Switching Current:	2A
U.L Rating:	0.5A 125VAC, 2A 30VDC, 0.25A 220VDC

3.8 MODEL NUMBER

The model number provides important information about the specifics of your Controller Module at time of order. Refer to this number when calling IVEK Technical support. The model number for your Controller Module is located in the Title Page section of this manual and on the rear of the Controller Module.

520082 - # # # # #

Motor/Base
- **A** - 23 & 34 Frame, 2400 RPM
- **B** - 23 Frame, 3000 RPM, Fast 1 Rev

Enclosure Finish
- **A** - Powder Coat
- **B** - Stainless Steel

Logic Interface
- **A** - Trig In (CC)
- **B** - PLC (OI)
- **D** - Motion System Interface Type A
- **E** - A + Contact Closure Ready and Fault Outputs

Front Panel
- **A** - No Front Panel Options
- **B** - Continuous Auto Retrigger W/Dwell
- **D** - Totalizer
- **E** - B & D

Line Cord & Agency Approval
- **A** - US Cord
- **B** - International Cord
- **C** - US Cord & CE Approval
- **D** - International Cord & CE Approval

NOTE

A 'Z' in the model number or a model number not listed indicates a custom option and will be described in either the Title Page or Chapter 4.

3.9 ILLUSTRATED PARTS BREAKDOWN

The illustrated parts breakdown (Figure 3.5) contains the information required for identifying and ordering replacement parts.

Table 3.3 Common Operational Problems And Solutions

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
No power, nothing works.	AC power may be absent or inadequate. Unit not plugged in.	Ensure AC power cord is plugged into a properly grounded three-prong outlet capable of supplying the voltage and current specified in the Title Page section of this manual.
	Fuse is blown.	Unplug main power cord from outlet. Remove fuse from fuse holder. Test fuse conductivity. Install good fuse.
	Supply Breaker is tripped.	Check or reset breaker for AC power receptacle.
Power is on, Controller Module accepts trigger, motor spindle fails to rotate or rotates slower than it should and motor makes a high pitch sound. This condition does not harm the system.	A Pump Module or motor malfunction can cause this problem.	Turn off the Controller Module. Remove Pump Module from Motor/Base Module. Turn on Controller Module and try again or if the motor operates correctly, the pump may need to be cleaned or serviced.
	Low line voltage	Measure line voltage, correct if required.
Power is on, Controller Module accepts a trigger, (START indicator illuminates, STOP indicator does not), motor spindle fails to rotate, and motor is silent.	A motor malfunction can cause this problem.	Turn off the Controller Module. Check to ensure Motor/Base Module is properly connected to Controller Module. Turn on power and try again. If the motor operates incorrectly, contact IVEK technical service as servicing may be necessary to the Motor/Base or Controller Modules.
Controller power on and operational, but will not actuate pump motor.	I/O Cable	Check the cable connection between the Controller Module and motor/base module. Inspect and repair faulty cable.
	Bad terminal strip trigger input signal.	Try using the front panel START switch. If the system operates correctly, check the input connections and source.
	Motor fuse is blown.	Unplug main power cord from outlet. Remove fuse from fuse holder. Test fuse conductivity. Install good fuse.
		If none of the above solves the problem, contact IVEK technical support for assistance.

INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY
		Digispense 10 Controller Module	**1**
1	662039-05	Switch Lens, Rocker, 662041 Legend; Disp/Prime	1
2	662029-005SY	LED, Wedge Based, Multichip, 5 VDC, Std Yellow	4
3	662039-03	Switch Lens, Rocker, 662041 Legend; Fwd/Rev	1
4	662039-01	Switch Lens, Rocker, 662041 Legend; Start/Stop	1
5	662029-005SG	LED, Wedge Based, Multichip, 5 VDC, Std Green	1
6	662029-005SR	LED, Wedge Based, Multichip, 5 VDC, Std Red	2
7	662025-01	Pushbutton Lens, For 662027, Legend, Reset	1

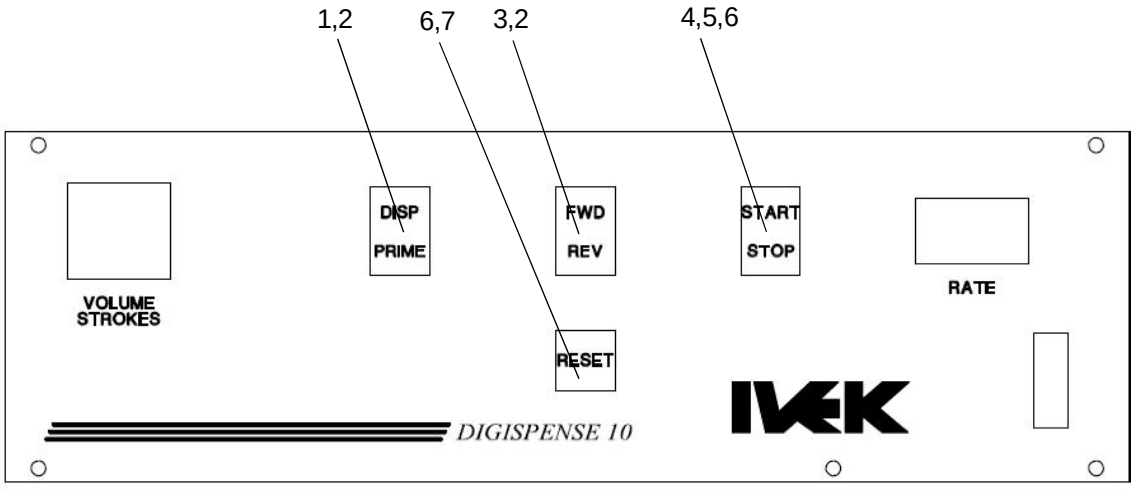

Figure 3.5 Digispense 10 Controller Module (Sheet 1 of 1)