

# PLC Controlled High Performance Automatic Grease Lubricator

## 1. About Pulsarlube PLC

### ◆ Specifications

Specifications	Description
<b>Grease Pouch Capacity</b>	60, 120, 240, 480ml (Replacement grease pouch volumes available)
<b>Operating Pressure</b>	Avg. 30bar (425psi) Max. 60bar (850psi)
<b>Power Supply</b>	PLC: DC 12V/ 24V Power Supply: DC 9V~36V max
<b>Output Current</b>	Max 1A (1,000mA)
<b>Operating Temp. Range</b>	-4 °F to 140 °F (-20 °C ~ 60 °C)
<b>Available Dispensing Periods</b>	Month Type : 1, 2, 3, ... 10, 11, 12 month Interval Type : Mode 1 thru 6
<b>Installation Thread Size</b>	3/8" PT Male
<b>Installation Types</b>	Single Point / Multi-Point up to 8 lube points
<b>LCD</b>	Backlit LCD
<b>Certificates</b>	CE, Kc

**NOTE** Technical information is subject to change without prior notice.

### ◆ Before Use

Thank you for purchasing the automatic electromechanical PLC grease lubricator by Pulsarlube USA, Inc. To ensure the safe operation and proper installation of your Pulsarlube PLC unit, we strongly recommend that you read the following information carefully before use. If you require any further information, please contact your local supplier or manufacturer.

**TECHNICAL INFORMATION**

◆ **Schematic Diagram**



◆ **Product Features**

The Pulsarlube PLC lubricator is available in two different control styles; Month or Interval type. Both Month and Interval options are available in PNP or NPN sensor types. These settings are preset at the factory and cannot be changed.

◆ **Month Type**

Dispenses grease at precise intervals that are preset within each default monthly setting.

◆ **Interval Type**

Dispenses the exact volume of grease desired each time the PLC operator instructs the Pulsarlube PLC to turn on and off. The volume of grease dispensed depends on the setting programmed by the user on the lubricator itself.

The PLC unit comes with a DC-DC converter, as well as an Electronic Relay. It can also be connected to a warning light or buzzer if needed.

Item	LCD Default Display	Detailed Description for Setting Modes
<b>Month Type</b>		1,2,3,4,5,6,7,8,9,10,11,12 (12 months) means <b><u>12 monthly settings available.</u></b>
<b>Interval Type</b>		1,2,3,4,5,6 (6 modes) means that there are <b><u>6 modes available.</u></b> <b>Mode 1:</b> Dispenses one (0.34 ml) cycle <b>Mode 2:</b> Dispenses twice the volume of mode 1 within 2 cycles <b>Mode 3:</b> Dispenses 3x the volume of mode 1 within 3 cycles etc.

◆ **Available Connection Methods for Each Model Type**

Method \ Type	Month Type			Interval Type		
	Use	Dispensing Period Settings	Alarm	Use	Dispensing Period Settings	Alarm
<b>PLC</b>	OK	1 ~ 12 month	Available	OK	<b>PLC input</b>	Available
<b>DC Adaptor (9 ~36Volt)</b>	OK	1 ~ 12 month	Available	N/A	N/A	N/A
<b>DC Control Panel</b>	OK	1 ~ 12 month	Available	N/A	N/A	N/A

**NOTE** DC adaptor and DC control panel connection is **only available** for Month Type.

## TECHNICAL INFORMATION

### ◆ Dispensing Periods for Each Model Type

#### ◆ Month Type Dispensing Periods

Dispensing volume /stroke 0.34ml

Dispensing Periods	60ml			120ml			240ml			480ml		
	Intervals /hour	Cycles /day	(ml) /day	Intervals /hour	Cycles /day	(ml) /day	Intervals /hour	Cycles /day	(ml) /day	Intervals /hour	Cycles /day	(ml) /day
1M	4	6.0	2.04	2	12.0	4.08	1	24.0	8.16	0.5	48.0	16.32
2M	8	3.0	1.02	4	6.00	2.04	2	12.0	4.08	1	24.0	8.16
3M	12	2.0	0.68	6	4.00	1.36	3	8.00	2.72	1.5	16.0	5.44
4M	16	1.50	0.51	8	3.00	1.02	4	6.00	2.04	2	12.0	4.08
5M	20	1.20	0.41	10	2.40	0.82	5	4.80	1.63	2.5	9.60	3.26
6M	24	1.00	0.34	12	2.00	0.68	6	4.00	1.36	3	8.00	2.72
7M	28	0.86	0.29	14	1.71	0.58	7	3.43	1.17	3.5	6.86	2.33
8M	32	0.75	0.26	16	1.50	0.51	8	3.00	1.02	4	6.00	2.04
9M	36	0.67	0.23	18	1.33	0.45	9	2.67	0.91	4.5	5.33	1.81
10M	40	0.60	0.20	20	1.20	0.41	10	2.40	0.82	5	4.80	1.63
11M	44	0.55	0.19	22	1.09	0.37	11	2.18	0.74	5.5	4.36	1.48
12M	48	0.50	0.17	24	1.00	0.34	12	2.00	0.68	6	4.00	1.36
Total Cycles	180 Cycles			360 Cycles			720 Cycles			1,440 Cycles		

#### ◆ Interval Type Dispensing Periods

Modes	60ml	120ml	240ml	480ml
Mode 1	0.34	0.34	0.34	0.34
Mode 2	0.68	0.68	0.68	0.68
Mode 3	1.02	1.02	1.02	1.02
Mode 4	1.36	1.36	1.36	1.36
Mode 5	1.70	1.70	1.70	1.70
Mode 6	2.04	2.04	2.04	2.04
Total Cycles	180 cycles	360 cycles	720 cycles	1,440 cycles

**NOTE** Please make sure to insert a minimum **5 minute pause** in between each programmed interval to protect your lubricator from overheating.

### ◆ Wiring Connection

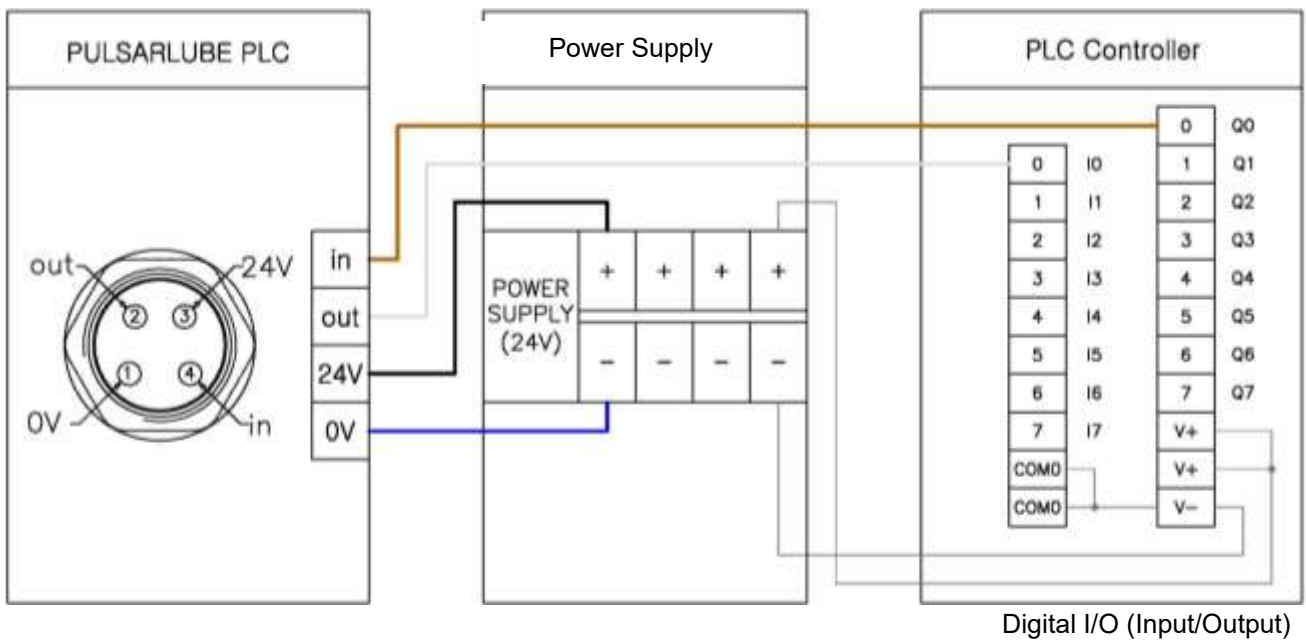
PIN No.	No.	Color	NPN TYPE	PNP TYPE
	①	Blue	VCC (24V )	GND (0V)
	②	White	Signal Out (Alarm Signal)	Signal Out (Alarm Signal)
	③	Black	GND (0V)	VCC (24V)
	④	Brown	Signal In (Operating Signal)	Signal In (Operating Signal)

**NOTE** Please pre-check the attached label on the Pulsarlube PLC cable before wiring.  
Extension cable(F) 3M / 5M(OPTION)

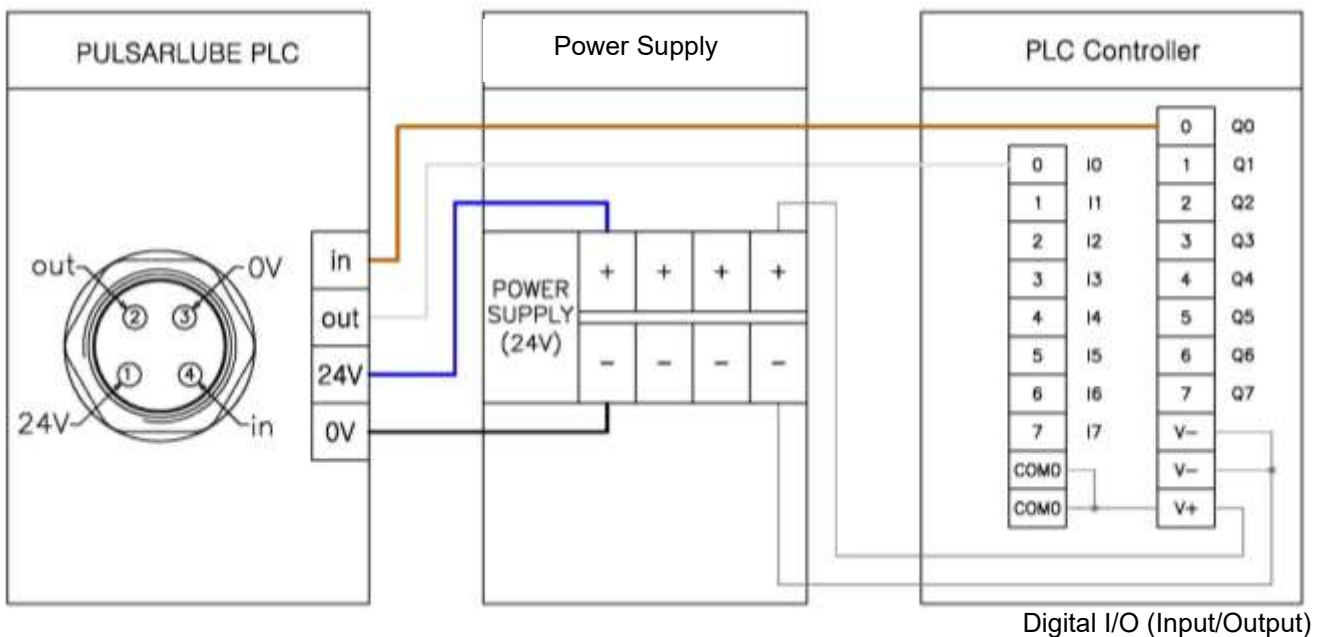
◆ **Wiring example for Pulsarlube PLC and PLC Controller**



◆ **PNP TYPE (SOURCE)**



◆ **NPN TYPE (SINK)**



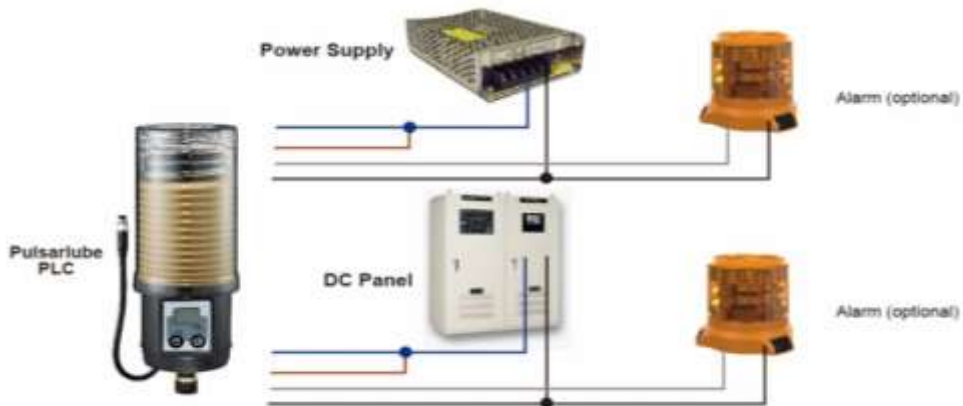
**TECHNICAL INFORMATION**

◆ Pulsarlube PLC Wiring Options

- 1)
- 2) Month Type & Interval Type



3) External Power Supply with DC Adapter (Available only for Month Type)



**NOTE** Above connection (brown + blue) method is for PNP type PLC lubricator.



**TECHNICAL INFORMATION**

## 2. How to Use Pulsarlube PLC

### ◆ Button & LCD Function

Icons							
0.5 seconds	2-3 seconds	5 seconds	Operating	Purging	Select/Reset	Power	Back pressure


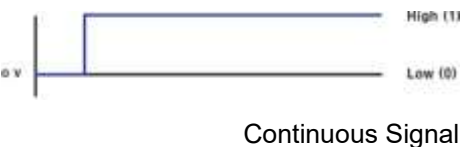




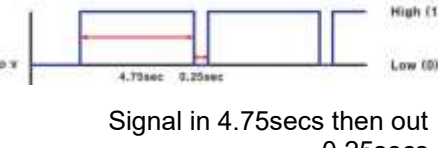

LCD Functions		
<b>Power ▶</b> On  3 secs    Off  5 secs 	<p style="text-align: center;">Grease Pouch Capacity</p>	<b>Mode</b> Press  for  a half sec ♣ Month : 1 thru 12 ♣ Interval : 1 thru 6 
<b>Purge ▶▶</b> Press  for  3 secs 		<b>Unlock 🔒</b> Press  for  2 secs 
<b>Backlight</b> Press 		<b>Reset</b> Press  for  5 secs 

### ◆ Pulsarlube PLC to an Alarm

Wire	Alarm Lamp (2 wires)	Alarm Lamp + Buzzer (3 wires)
<b>+ Power</b>	Connect to PLC controller output signal or lubricator output signal cable (White wire)	Same
<b>- Power</b>	Connect to PLC controller - power or - power of power supply (DC control panel - power)	Same
<b>Buzzer wire</b>	N/A	Connect to PLC controller output signal or lubricator output signal cable (White wire)





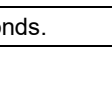


**TECHNICAL INFORMATION**

◆ **How Pulsarlube PLC Alarm Signal Operates**







Type Indication		Month Type PLC Unit	Interval Type PLC Unit
Extreme backpressure encountered 	Output Signal	 <p>Continuous Signal</p>	 <p>Continuous Signal</p>
	How to reset		
End of lube cycle reached 	Output Signal	 <p>Continuous Signal</p>	 <p>Signal in 4.75secs then out 0.25secs</p>
	How to reset		

**1. How to set the Mode**

**1-1) Initial Setting**

Order	Step 1	Stand by to set mode.	Step 2	Select mode.	Setting complete.
Buttons & LCD		◆ Month Type   ◆ Interval Type  		◆ Month Type 1 ~ 12 ◆ Interval Type 1 ~ 6	
Time	Press this button for 3 seconds.		Press this button for a half second.		

**1-2) How to Change the Mode Setting**

Order	LCD shows auto locked.	Step 1	Now it's unlocked.	Step 2	Select mode.	Step 3	Setting complete.
Buttons & LCD							◆ Month Type 1 ~ 12 ◆ Interval Type 1 ~ 6
Time		Press for 2 seconds.		Press for 3 seconds.		Press for a half second.	

## TECHNICAL INFORMATION

### 2. How to unlock the LCD

#### 2-1) LCD is in "Lock-mode" in first diagram

Order	System Locked.	Step 1	Now it's unlocked.
Buttons & LCD			
Time	Press for 2 seconds to unlock		

#### 2-2) How to turn on the lubricator

Order	Stand by.	Step 1	System Locked.	Step 2	Unlocked.	Unit on then stand by.
Buttons & LCD						
Time	Press Power for 3 seconds to turn unit ON.			Press Select for 2 seconds to unlock the LCD.		The LCD will turn off and the lock icon will appear if no input has been keyed in after one minute of having had turned the unit on.

### 3. How to reset the unit

#### 3-1) If the LCD is on

Order	LCD on in lock mode.	Step 1	LCD is now unlocked.	Step 2	LCD is now reset.
Buttons & LCD					
Time		Press for 2 seconds.		Press for 5 seconds.	

#### 3-2) If LCD is off

Order	Stand by.	Step 1	LCD on in lock mode.	Step 2	Unlocked.	Step 3	LCD is now reset.
Buttons & LCD							
Time		Press for 3 seconds.		Press for 2 seconds.		Press for 5 seconds.	



**TECHNICAL INFORMATION**
**3-3) How to replace the service pack once the dispensing cycle has completed**

Order	3 items will blink when dispensing cycle has finished.	Step 1	LCD is unlocked to default mode.	Step 2	LCD is now reset and ready for next lube cycle to be programmed.
Buttons & LCD					
Time		Press for 2 seconds.		Press for 5 seconds.	

**4. How to purge**
**4-1) Purge**

Order	Unlock.	Step 1	Purging starts.	After 6 continuous cycles, purge test ends.
Buttons & LCD				
Time	Read back to 2-1.	Press this button for 3 seconds.		LCD automatically locks within 10 seconds if no additional buttons have been pressed.

**4-2) How to stop the lubricator while in purge mode**

Order	Purging starts.	Step 1	Purging stops.	Automatic purge ended.
Buttons & LCD				
Time	Read back to 4-1.	Press for a half second.		Automatically locks within 10 seconds if no additional buttons have been pressed.

**TECHNICAL INFORMATION**

**◆ How to Change Grease Pack**

Please take the following steps to replace the grease pack after the dispensing cycle has come to an end. Please make sure you reset and re-program your lubricator after the grease pack has been replaced.

<p>1.</p> <p>Complete    Unlock (2 secs)    Reset (5 secs)    Reset</p> <p>When the selected cycle ends, unlock the unit then reset.</p>	<p>2.</p> <p>Remove the used grease pack inside by turning the housing counter clockwise</p>	
<p>3.</p> <p>Purge grease past the tip of the grease pack.</p>	<p>4.</p> <p>Thread in the grease pack. Do not over-tighten.</p>	<p>5.</p> <p>Screw on top housing turning clockwise.</p>
<p>6.</p> <p>Turn on by pressing the Power button.</p>	<p>7.</p> <p>Select the desire setting mode.</p>	<p>8.</p> <p>GREASE TYPE</p> <p>Date Installed</p> <p>Date Expiry</p>

**WARNING**



Please do not tamper with the item shown in the picture on the left. It may result in serious damage or malfunction of your lubricator. The Pulsarlube PLC unit is electrically powered.

# TECHNICAL INFORMATION

## ◆ Troubleshooting

### ◆ When unit does not operate

LCD Indication	Possible Causes	Troubleshooting Steps
	If LCD shows as left image, ✓ Electrical malfunction of CPU ✓ Possible contact problem (open circuit) with programming buttons on the lubricators' control panel.	Reset the unit.  If technical difficulty continues, please contact your local supplier or manufacturer for further assistance.
	If unit displays a <b>blank screen and doesn't turn on</b> , ✓ It may be a possible electrical malfunction of the CPU or circuitry ✓ Misconnection of the wire +,-	

### ◆ When unit does not dispense

LCD Indication	Possible Causes	Troubleshooting Steps
	If the unit <b>stops dispensing</b> , ✓ Over lubrication at the lube point ✓ Hardened grease at the lube point ✓ Kinked lube line ✓ Max lube line distance on remote installation has been exceeded, etc.	<ol style="list-style-type: none"> <li>1. Remove the lubricator from the lube point.</li> <li>2. Try Section 4-1.Purging. Ensure that lubricator is dispensing properly.</li> <li>3. Reinstall the lubricator after resolving the cause of backpressure.</li> </ol>
<p style="text-align: center;">+</p>	If <b>too much lubricant</b> left compared to the remaining days or if the lubricator reaches the end of its lube cycle and there is <b>lubricant still remaining</b> in the grease pack; ✓ Check for foreign material in the pump ✓ Check for air pockets in the grease pack ✓ Check for grease hardening within the grease pack or in the lube line.	<ol style="list-style-type: none"> <li>1. Try Section 4-1.Purging. Ensure that lubricator is dispensing properly.</li> <li>2. If lubricator does not dispense while on Purge mode, remove the grease pack and check the check valve located at the base of the lubricator for debris.</li> </ol>
	If the LCD <b>backlight</b> lights up and display icons blink as shown left,	<ol style="list-style-type: none"> <li>1. Replace the empty grease pack with a new one</li> <li>2. Then reset the unit before select the dispensing mode again.</li> </ol>