PLC Distributor Manual

Overview

A **PLC (Programmable Logic Controller)** is a specialized computing system used to control and automate industrial machines and processes. It is a rugged system designed to operate in industrial environments.
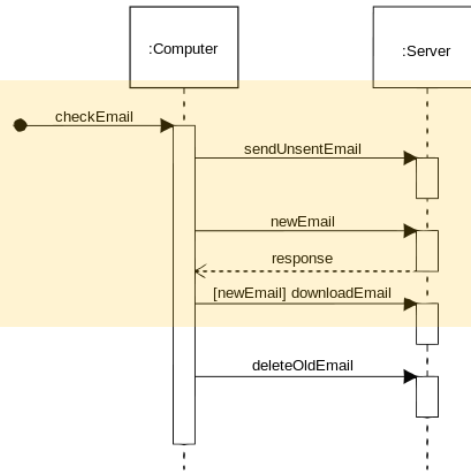
First invented to replace hardwired relay systems, PLCs can help reduce production costs and aids in mass production.

Program: Write the order.	**L**ogic: Follow the sequence.	**C**ontroller: Control the process.

```c
#include <stdio.h>

int main(void)
{
  printf("Hello World!\n\n");
  return 0;
}
```

:Computer   :Server

checkEmail

sendUnsentEmail

newEmail

response

[newEmail] downloadEmail

deleteOldEmail

Applications

Automotive Spot Welding Lines

Textile Chemical Lines

Automotive Paint Lines

Car Seat Conveyor Lines

Applications

- Manufacturers and parts suppliers utilizing industrial robots and assembly line control for processes such as transport, assembly, painting, welding, and warehousing

- Food and beverage manufacturers that require control of conveyors and product lines

- Manufacturers and logistics companies that require automatic warehousing (goods receipt, shipment management), cargo handling equipment

- Raw material transportation & iron and steel mills, unloading, manufacturing processes

- Pollution prevention and recycling plants for controlling waste incinerator, recycling machinery, crushers, etc.

PLC Advantages

- Cost effective – highly productive & stable

- Possible to control remotely

- Communication capability

- Simple wiring compared to previous relay systems

- Operates complicated systems with faster responses

- Strong reliability

- Long lifecycle due to upgradable system

- Easy program access by users

Pulsarlube PLC Selection Guidelines

Step1. Ask for the PLC Controller signal type and order the Pulsarlube PLC lubricator accordingly.
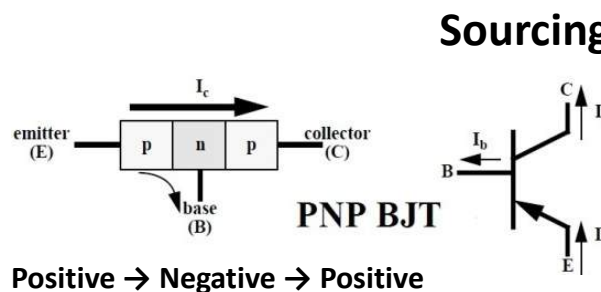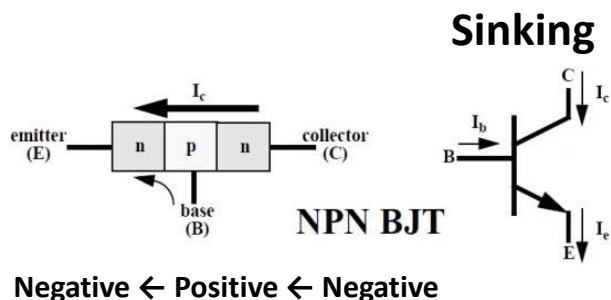
There are two types of sensors available; **PNP** and **NPN.** To connect to a sensor you will need to be able to match the type of signal the device uses.

In order to meet both types without confusion, **Pulsarlube PLC** can be ordered with either PNP or NPN, in accordance to your needs.

NOTE

North America and Europe typically uses PNP sensors and Asia typically uses NPN sensors.

However, if your customer in NA or Europe is using a PLC controller made by an Asian company, it may be using an NPN sensor type.

Sinking

NPN BJT

Negative ← Positive ← Negative

Sourcing

PNP BJT

Positive → Negative → Positive

Pulsarlube PLC Selection Guidelines

Step2. After the Pulsarlube PLC sensor type is selected, choose the desired type of lubricator, MONTH or INTERVAL. Use the checklist below to see which setting mode is right for your application.

✓ Typical M series monthly dispensing setting works fine for application.
✓ I might not use a PLC controller and may be connecting it directly to a DC power supply.
✓ I don't need to differentiate whether the alarm is triggered for end of monthly cycle or backpressure

MONTH is the simple choice.

✓ I want complete control and customization over dispensing.
✓ I know exactly when and how much grease should be dispensed.
✓ I'd like to know the exact reason why the alarm is triggering before I go to the lubricator on-site.

INTERVAL is the right choice.

MONTH TYPE	INTERVAL TYPE

Pulsarlube PLC Selection Guidelines

Step3. Choose the desired size and grease specification.

480ml

60ml

120ml 240ml

For the dispensing cycles chart, please refer to next slide.

Grease Capacity: 60ml, 120ml, 240ml, 480ml
Lubricants: PL1 ~ PL10

Part number examples:
PLC120-MON(P)/PL1 – PLC 120ml Month PNP type filled with PL1 grease
PLC240-INT(N)/PL4 – PLC 240ml Interval NPN type filled with PL4 grease

Pulsarlube PLC Dispensing Chart

1) **MONTH type** - Familiar with the Pulsarlube M series? The monthly settings are the same!

◆ **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		

2) **INTERVAL type** – A PLC controller is REQUIRED to use this product.

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.

How to Wire the Operating Signals

**Step1. First check the wires and make sure to connect the correct wires for DC IN/OUTPUT.**

Connect Alarm Out ②
wire to DC Input Port

Connect Signal In ④
wire to DC Output Port

Pulsarlube PLC Cable

Pulsarlube PLC sends a
alarm signal out to DC
Input when an error
occurs

Pulsarlube PLC receives a
signal from DC Output
when a signal is sent from
the PLC

Alarm Out ② ④ Signal In

Wiring Example

DC IN   DC OUT

② ④

PLC controller

CPU

D C I N

D C

O U T
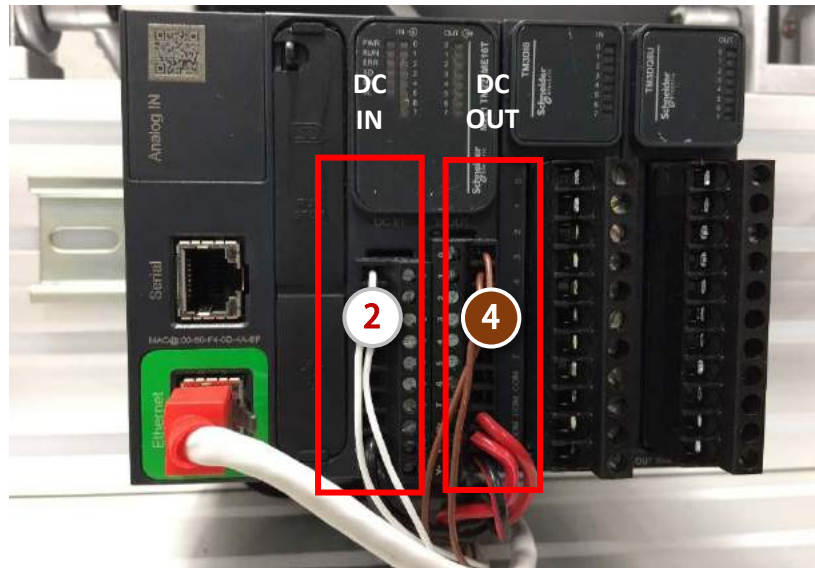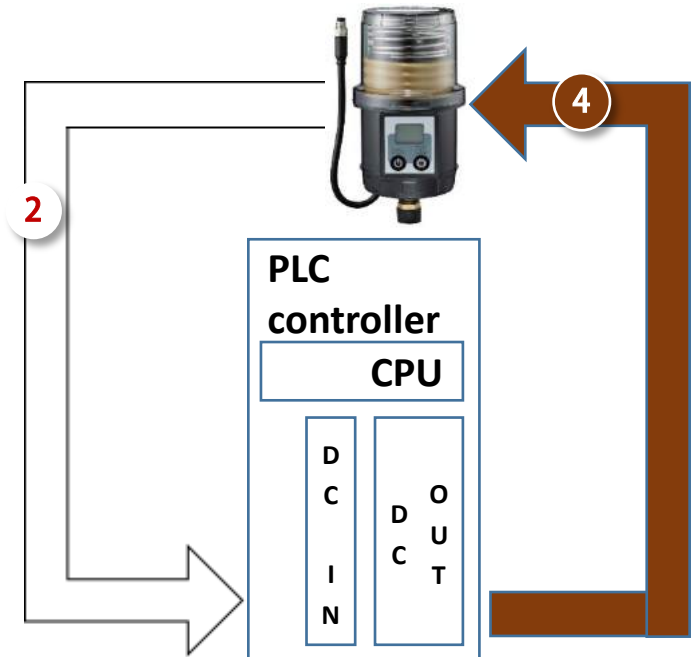
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# How to Wire the Power Supply Signals

Step2. Now connect power supply cables to the Power supply.

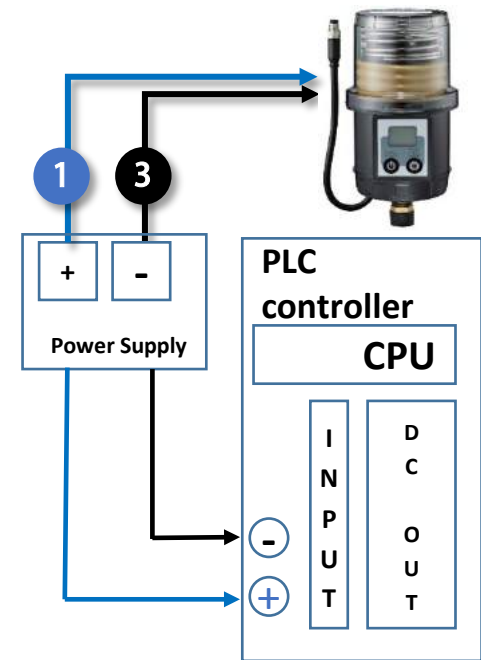**VCC+** 1
Power connection to
Power Supply (9-24V)

GND- 3
Power connection to
Power Supply (0V)

Pulsarlube PLC Cable

VCC 1 3 GND

NOTE This is a wiring example of the Pulsarlube PLC demo kit.
Power supply wires might be different depending on the
type of PLC controller. Please make sure to check
Plus + (24V) and **Negative** - (0V).

Wiring Example

Power
Supply

3

1

Pulsarlube PLC
VCC/GND wires

1 3

+ −

Power Supply

**PLC
controller**

CPU

I N P U T

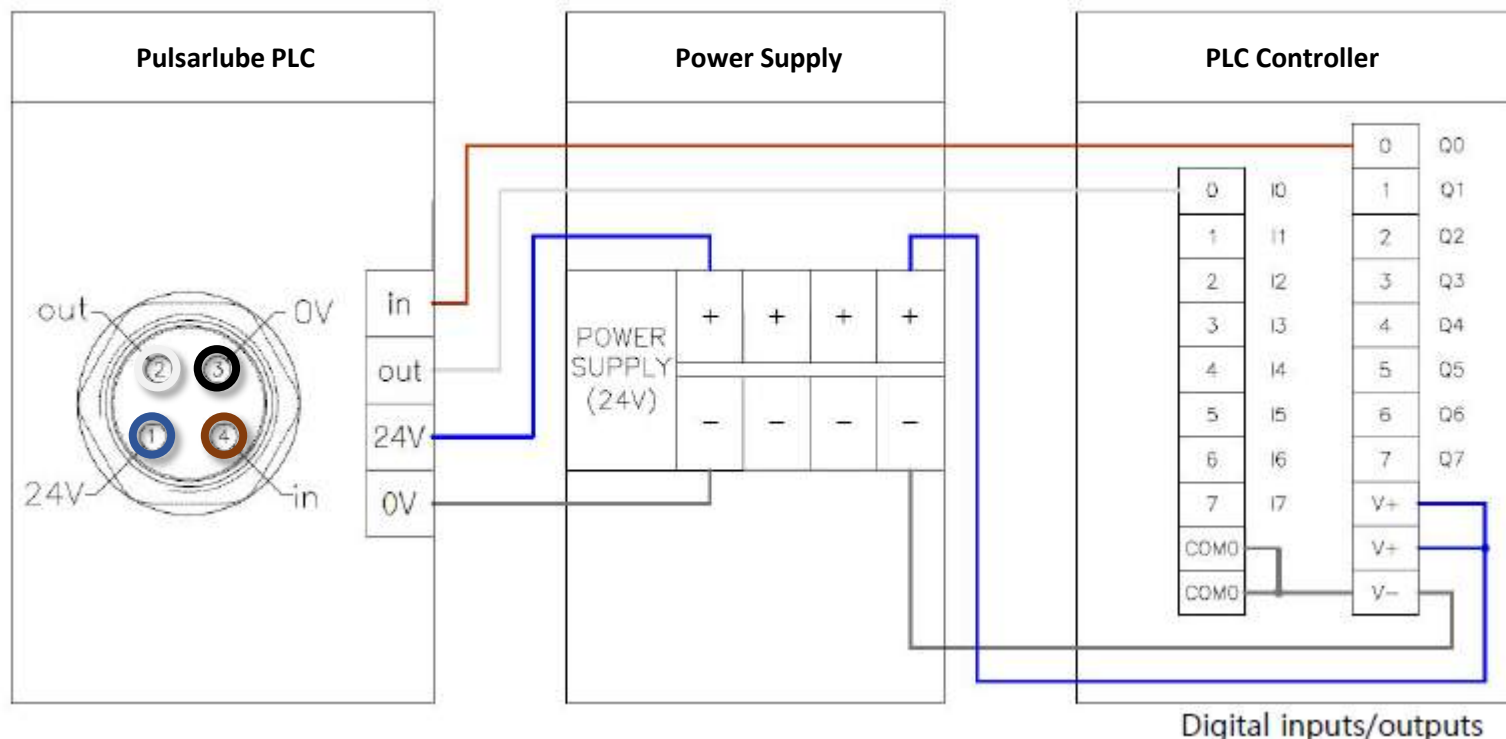D C O U T

−

+
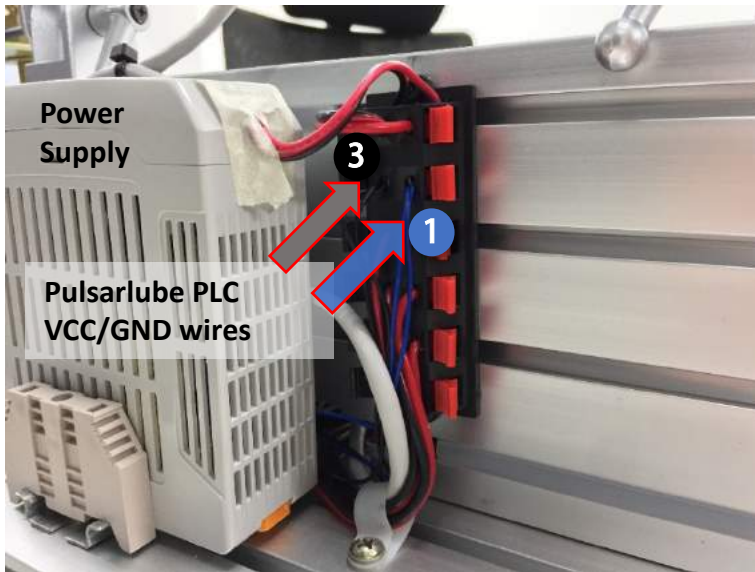
Pulsarlube USA, Inc

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Wiring Guideline

If customer requires further information, the diagram below can be used as an example.

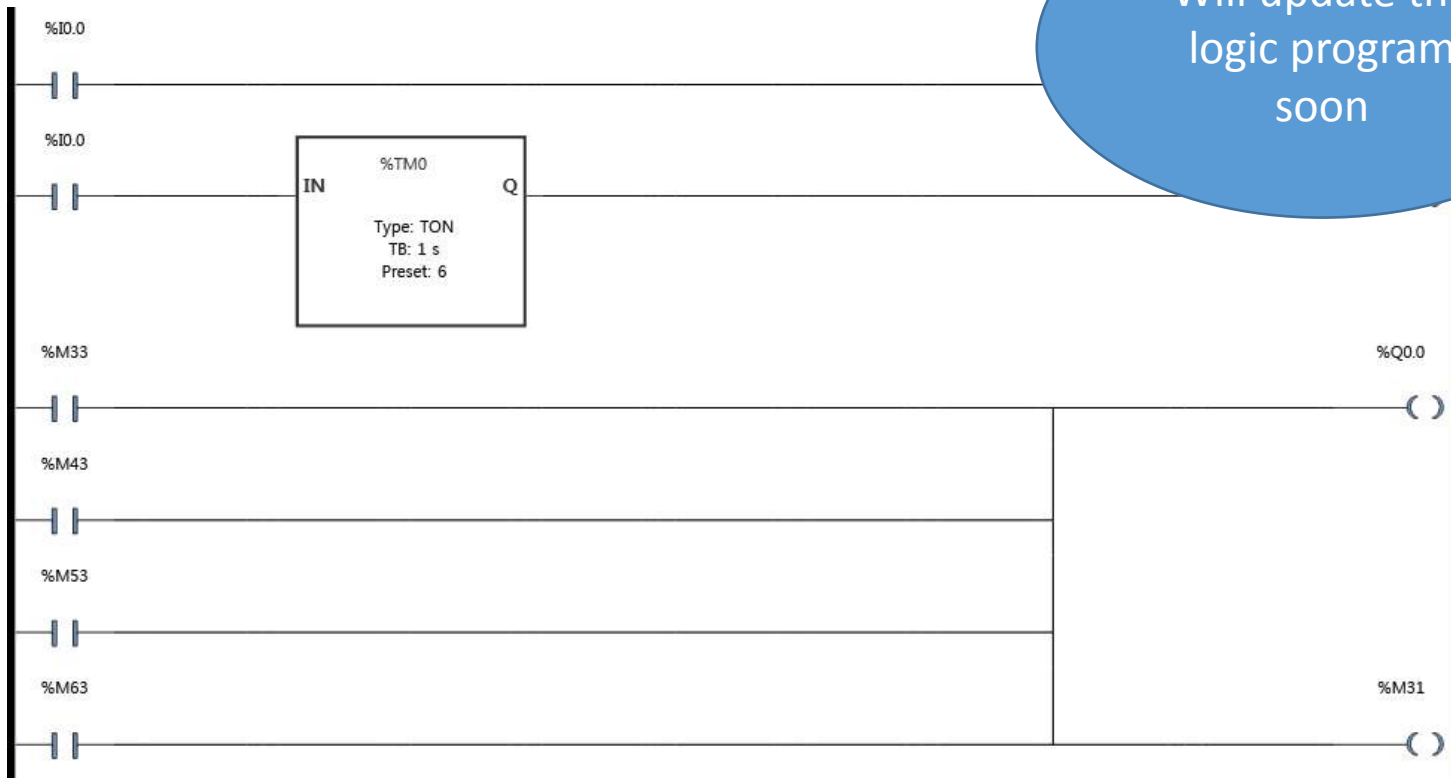**Wiring example of Pulsarlube PLC PNP type & PLC Controller**

Digital inputs/outputs

Program Guideline

If customer requires further information, the diagram below can used as a programming example. A sample logic can be downloaded from our website www.pulsarlube.com.

The basic ladder logic example of Pulsarlube PLC

Will update the logic program soon