The MEMOLUB® HPS

User's Guide

4.7

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TABLE OF CONTENTS

1 THE MEMOLUB® HPS 3

1.1 OVERVIEW 3
1.2 THE MEMO 4
1.2.1 Description 4
1.2.2 Volumetric Setting of the MEMO 4
1.2.3 Frequency Setting of the MEMO 4
1.3 THE LUBRICATOR BODY 5
1.3.1 Description 5
1.3.2 Function 5
1.4 LUBRICANT CARTRIDGES AND BATTERY PACKS 5
1.4.1 Lubricant Cartridges 5
1.4.2 Battery Packs 6
1.4.3 Stocking 6
1.5 MEMOLUB® EX 6

2 THE MULTI-POINT LUBRICATION SYSTEM 7

2.1 FUNCTION 7
2.2 DISTRIBUTION BLOCKS 7
2.3 COUPLER BRIDGING ELEMENTS 8

3 THE 2-POINT SPLITTER (ALSO KNOWN AS "SPLITTER-MEMO") 8

3.1 DESCRIPTION 8
3.2 HOW IT WORKS 9
3.3 RETROFITTING A MEMOLUB® 9

4 THE MEMOLUB® HPS WITH EXTERNAL POWER CONTROL OR SUPPLY 9

4.1 THE MEMOLUB® EPC VERSION 9
4.2 THE MEMOLUB® EPS VERSION 10
4.3 The MEMOLUB® PLCd 24VDC CONTROLLED Version 11

5 ACCESSORIES 12

5.1 TUBING 12
5.2 TABLE OF RECOMMENDED PIPE AND TUBING LENGTHS 13
5.3 FITTINGS 13

6 INSTALLATION 13

6.1 INSTALLING THE MEMO 13
6.2 OPENING AND CLOSING THE MEMOLUB® HPS 14
6.2.1 Opening the MEMOLUB® HPS 14
6.2.2 Closing the MEMOLUB® HPS 14
6.3 INSTALLING A GREASE CARTRIDGE 14
6.4 INSTALLING AN OIL CARTRIDGE 16
6.5 TESTING THE MEMOLUB® HPS (CHECK FUNCTION) 16
6.6 MOUNTING THE MEMOLUB® HPS ONTO THE MEMO 16
6.7 TESTING THE MEMOLUB® HPS (WHILE MOUNTED) 16
6.8 MAINTENANCE 16

7 MOUNTING DO'S AND DON'TS 17

7.1 GENERAL 17
7.2 SINGLE-POINT INSTALLATION 17
7.2.1 Direct Installation 17
7.2.2 Remote Installation 17
7.3 MOUNTING WITH THE 2-POINT SPLITTER (SPLITTER- MEMO) 17

7.4 MOUNTING WITH THE PROGRESSIVE DISTRIBUTION BLOCK 18

8 TROUBLESHOOTING 18

8.1 THE MEMOLUB® HPS DOES NOT WORK 18
8.2 NO LUBRICANT IS COMING OUT OF THE MEMOLUB® HPS 18
8.3 THE LUBRICANT CARTRIDGE DOES NOT EMPTY CORRECTLY 18
8.4 LUBRICANT DOES NOT GET TO THE APPLICATION 19

9 WARRANTY 19

10 APPENDIX 20

10.1 MEMOLUB® HPS SPECIFICATIONS 21
10.2 MEMOLUB® HPS DIMENSION DRAWING 22
10.3 BASIC PROGRAM SETTINGS 23
10.4 FINE-TUNING YOUR LUBRICATION PROGRAM 24
10.5 MULTI-POINT SYSTEM ORDERING INFORMATION 25
10.6 MULTI-POINT SYSTEM DISTRIBUTION BLOCK SETUP GUIDE 27
10.7 2-POINT SPLITTER PROGRAM SETTINGS 28
10.8 2-POINT SPLITTER DIMENSIONS 29
10.9 MAINTENANCE ADAPTER INFORMATION 30
10.10 INSTALLATION PARTS 31
10.11 MANUAL LUBRICATION VS. MEMOLUB® AUTOMATIC LUBRICATION 33
10.12 MEMOLUB® EX 34
10.13 MEMOLUB® EPC 35
10.14 MEMOLUB® EPS 36
10.15 MEMOLUB® 24VDC PLC CONTROLLED 37
10.16 MEMOLUB® 24VDC PLC CONTROLLED INSTALLATION INSTRUCTIONS 38
10.17 MEMOLUB® WHICH LUBRICATION SYSTEM TO ORDER 39

MEMOLUB® HPS has a 2-year limited warranty for replacement due to defects in material and labor. Not responsible for consequential damages beyond replacement or refund of amount paid. MEMOLUB is a registered trademark of MEMOLUB International, s.a.

1 The MEMOLUB® HPS

1.1 Overview

The MEMOLUB® HPS is an automatic, self-contained, electro-mechanical lubricator. The "HPS" in its name stands for High Pressure System. It ejects grease or oil under programmable control at an output pressure of 350psi. There are three available models:

	Cartridge Capacity	
Model 120 (Standard)	120cc	¼ pound
Model 240 (Mega)	240cc	½ pound
Model 480 (Giga)	480cc	1 pound

The MEMOLUB® HPS is a highly versatile device of robust design that can be used to satisfy a variety of application requirements. Its value and reliability have been proven through years of use by hundreds of companies in thousands of applications.

- The MEMOLUB® is a single point lubricator that can be mounted directly on the bearing point, slide, gear, or other object requiring lubrication.
- The MEMOLUB® can be mounted remotely for safety, ease of service, or avoidance of hostile environments.
- A single MEMOLUB® HPS becomes a 2-point lubricator when used with the Splitter-MEMO.
- The MEMOLUB® can be used as a miniature, low-cost, central lubrication system to lubricate from 2 to 12 bearings, using a distribution block.

The MEMOLUB® is easily and quickly programmed to eject lubricant at the desired rate of output and operates as a self-contained lubricator using a battery pack for its source of power. The EPC (External Power Control) and EPS (External Power Source) versions expand the application potential of the MEMOLUB®. These versions can be turned on and off by the machine on which they are being used. This is a valuable feature when lubrication is required on intermittently or infrequently used equipment. The EPC version of the MEMOLUB® is battery-powered. The EPS version is powered by an external source.

Under control of a PLC (Programmable Logic Controller) the MEMOLUB® EPC or MEMOLUB® EPS can be used to lubricate equipment based upon runtime hours, machine cycles, time of day, or other criteria.
The basic MEMOLUB® HPS is composed of three parts.

- The MEMO, which is used to program the rate of lubricant output.
- The MEMOLUB®, consisting of a red motor housing and a transparent dome with spring and locking ring.
- The replaceable lubricant cartridge and battery pack.

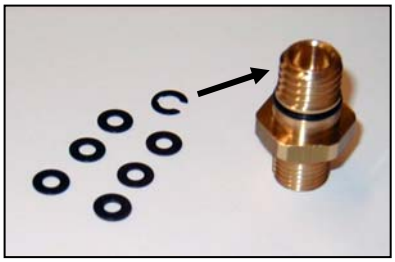
1.2 The MEMO

1.2.1 Description

The MEMO regulates the rate of grease output of the MEMOLUB® HPS. It consists of a brass adapter, a black plastic timing-ring holder, and three plastic timing rings (one white, one red, and one black). The MEMO is permanently fitted onto the bearing or other component, and all MEMOLUB® HPS lubricators of any size will recognize its program setting.

1.2.2 Volumetric Setting of the MEMO

The brass adapter is an extension of the MEMOLUB's pump cylinder. One end has a short ¼" NPT thread used to mount the MEMO on the bearing. The other end is an M12x1.50 thread that screws into the MEMOLUB® lubricator. A set of special stroke-limiting washers is supplied with each MEMOLUB® for use in programming the volume of lubricant ejected on each output cycle.



When the MEMO is used without washers (yielding full piston stroke), the output volume at each stroke is 0.635cc. For each washer inserted into the brass adapter of the MEMO, the output volume will decrease by 0.04cc per stroke. A Maximum of 8 washers (including a lock washer) can be inserted into the brass adapter. If the stroke-limiting washers are used, the lock washer should be inserted last to hold the others in place. If only one washer is used, use the locking washer. *Important Note: When using the 2-Point Splitter (see Section 3: The 2-Point Splitter), volumetric setting is not possible.*

1.2.3 Frequency Setting of the MEMO

The white, red, and black plastic timing rings are used to set the frequency of ejection cycles of the MEMOLUB® HPS. They are inserted into the black plastic ring-holder either individually or in combination to obtain the desired frequency of output cycles.

The seven output frequency settings of the MEMOLUB® HPS are as follows:

Rings Used	Code	Ejection Cycles Per Day	Cycle Frequency
Red, White, & Black	RWB	24	1 Hour
Red & White	RW	12	2 Hours

Red & Black	RB	4	6 Hours
Red	R	2	12 Hours
Black & White	BW	1.5	16 Hours
White	W	1	24 Hours
Black	B	0.5	48 Hours

Using the volumetric program settings described in *Section 1.2.2* above, and the frequency settings shown here, it is possible to achieve 52 different rates of lubricant output. The output settings are shown on two pages in the Appendix titled "*Basic Program Settings*" and "*Fine Tuning Your Lubrication Program*".

When the MEMOLUB® HPS lubricator is shipped, all three timing rings are seated in the plastic holder. To remove them, just use a small screwdriver.

1.3 The Lubricator Body

1.3.1 Description

The lubricator body consists of a red motor housing, a transparent dome, a spring, a compression plate, a black rubber seal, and a black locking ring. The red motor housing contains all of the electro-mechanical parts of the MEMOLUB® HPS. The black rubber seal covers the battery compartment. Because of the configuration of its grease cartridge, the Model 480 lubricator does not require this black seal.

The transparent polycarbonate dome protects the lubricant cartridge and allows for the easy viewing of lubricant remaining. The spring and the compression plate maintain the position of the lubricant cartridge on the inlet valve of the pump in the red housing.

1.3.2 Function

An electric motor drives a gearbox. A cam fitted on the outlet gear drives a lever which lifts the hollow piston and simultaneously compresses a spring. When the piston reaches the top of its stroke, the lever is freed from the cam and the piston begins its downward (working) stroke, driven by the spring. Lubricant is sucked into the chamber formed above the piston during its downward ejection stroke, thus preparing the piston for the next cycle.

1.4 Lubricant Cartridges and Battery Packs

1.4.1 Lubricant Cartridges

Each size lubricator has its own corresponding lubricant cartridge. Every grease cartridge is filled with care and precision, and is centrifuged during the filling operation to avoid air pockets in the cartridge that might create an air lock in the pump. Cartridges are not

reusable. The volume of grease in each cartridge is carefully calculated and the weight of each cartridge depends on the specific weight of the lubricant inside.

PLI, LLC stocks over 250 different greases and oils for filling lubricant cartridges, but almost any lubricant with a rating of NLGI-2 or less is suitable for use in the MEMOLUB® HPS.

PLI does not recommend lubricants for a particular application. If a MEMOLUB® user is uncertain of the type of lubricant to be used PLI can often assist by providing general information. We can also assist by referral to the Technical Services Department of the desired lubricant manufacturer. These Technical Services Departments offer expert advice on the lubricant requirements for specific applications and the product in their line best suited to the need.

1.4.2 Battery Packs

A MEMOLUB® Battery Pack is delivered with each MEMOLUB® HPS replacement cartridge. Each battery pack can empty a lubricant cartridge while operating at **continuous** temperatures as low as the following:

- STANDARD Model 120 (120cc) cartridge: +21°F (-5°C)
- MEGA Model 240 (240cc) cartridge: +32°F (0°C)
- GIGA Model 480 (480cc) cartridge: +41°F (+5°C)

For continuous operating temperatures lower than those shown, available cold-weather lithium battery packs should be used.

Battery packs should be changed every time the lubricant cartridge is replaced to assure proper voltage to the system; and each battery pack should only be used once. A new battery pack is supplied with each replacement cartridge purchased.

1.4.3 Stocking

Cartridges and battery packs must be stored in a cool, dark location (ideally in their original packaging). The shelf-life of stored batteries is 2 years.

1.5 MEMOLUB® EX

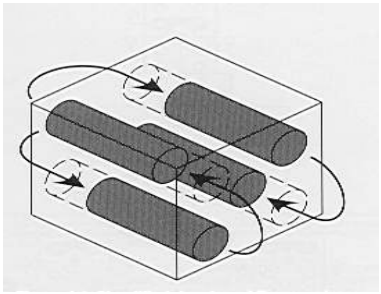
The MEMOLUB® EX is the same self-contained, battery powered lubricator as the MEMOLUB® model with a modified enclosure rated for limited hazardous locations. This version is identified by the black motor base housing.
(See Appendix for EX Ratings)

2 The Multi-Point Lubrication System

2.1 Function

Using a MEMOLUB® distribution block, the MEMOLUB® HPS Multi-Point System can service from 2 to 12 lubrication points. The distribution block is completely sealed to keep out airborne contaminants, dust, and dirt, and works on the principal of piston valves. During operation, a series of pistons inside the block is actuated by the flow of lubricant from the MEMOLUB® lubricator. Lubricant flows through a series of internal channels in the distribution block, when one piston valve is filled the other is emptied through its output port. The pistons move in a prearranged sequence to allow for the progressive distribution of lubricant to all lubricant points.

A built-in check function can be used to confirm that the system is operating properly. An indicator pin is located on the last piston of the distribution block. The pin moves back and forth at the completion of a lubrication cycle. If there is a blockage anywhere in the system, the system stops lubricating and the indicator pin ceases to move. Visual inspection of the indicator pin can be used to verify proper operation of the system.



To remotely and continuously monitor operation of the system a distribution block with an optional limit switch is available. An electric circuit is attached to the limit switch. The limit switch is activated by the indicator pin, which makes or breaks contact in the electrical circuit. This signal may be tied into a monitoring device to display visual or audible indication of the systems operation.

2.2 Distribution Blocks

On each output cycle of the distribution block each outlet port ejects .3cc's of lubricant. Multi-point systems are available using distribution blocks with an even number of outlet ports (i.e. 4, 6, 8, 10 and 12). Multi-point lubrication systems are designed using these basic distribution blocks and the coupler bridging elements described in *Section 2.3* below. The coupler bridging elements permit the design of systems with a number of outlet ports other than those of the basic distribution block.

MEMOLUB® multi-point lubrication systems are generally delivered to the user pre-assembled with the specified number (2 through 12) of lubricant outlet ports, charged with the appropriate lubricant and ready to install. Tubing pre-filled with the desired lubricant is available in various lengths to facilitate installation. These ready-to-use systems are termed MEMOLUB® Plug 'n Lube™ Systems. Empty tubing is also available which the user may charge with lubricant upon installation.
On occasion it may be desired to retrofit a previously-purchased MEMOLUB® lubricator into a multi-point system, or change the number of outlet ports in a multi-point system

that was previously installed. When this occurs, individual distribution blocks and coupler bridging elements are available from PLI.

PLI and its distributors are always available to assist in the design, layout, and ordering of a multi-point system appropriate for your needs.

2.3 Coupler Bridging Elements

For those applications requiring an odd number of lube points, coupler bridging elements may be required for linking two outlet ports together. In this case, the lubricant volume at the outlet of the coupler will be doubled. For instance, an eight-port distribution block with two outlet ports linked together by a coupler becomes a seven-port distribution block with one port receiving twice as much lubricant as the other six ports. Cross-porting using coupler bridging elements can be advantageous when designing systems in which some bearings on the system require greater amounts of lubricant than others. The use of couplers for cross-porting outlet ports on distribution blocks is illustrated and further explained in the Appendix (see "*Distribution Block Set-Up Guide"*).

3 The 2-Point Splitter (Also known as "Splitter-MEMO")

3.1 Description

The Splitter-MEMO divides the volume of lubricant at each ejection cycle of the MEMOLUB® HPS. It is specially designed for the economical lubrication of two-bearing shaft systems such as electric motors, pumps, and fans. It transforms the MEMOLUB® HPS into a two-outlet system.

The Splitter-MEMO can be used with any of the three sizes of MEMOLUB® HPS lubricators (namely the Model 120, Model 240, or Model 480). Refer to the Appendix for *Splitter-MEMO Output Programming*.

The Splitter-MEMO replaces the brass fitting of the normal MEMO. The black plastic timing ring holder and three colored timing rings are used with the Splitter-MEMO to program the frequency of lubricant ejection cycles. The black plastic timing-ring holder is fit onto the Splitter-MEMO in the same manner as on the brass fitting of the standard MEMO. The Splitter-MEMO comes equipped with 5/16" (8mm) push-in tube fittings on the outlet ports. ***Important:*** *The Splitter-Memo can only operate under full-piston stroke. Do not attempt to insert stroke-limiting washers into the Splitter-MEMO.*

It is recommended that the Splitter-MEMO be used with greases having a base-oil viscosity of no more than 10,000cSt, at working temperature. Check with your MEMOLUB® distributor, lubricant supplier, or with PLI for base-oil viscosity information.

The lengths of tubing that can be used with the Splitter-MEMO applications are determined by the base-oil viscosity at the working temperature of the grease used. The

table in *Section 5.2* provides information on recommended maximum tube lengths to be used with the Splitter-MEMO. Contact your MEMOLUB® distributor, PLI, or your lubricant supplier for information on the temperature at which the base-oil of the grease being used reaches this viscosity.

3.2 How It Works

An explanation of the operation of the Splitter-MEMO, with diagrams, is provided in the Appendix. Also provided in the Appendix are dimensional drawings of the system when used with each of the three sizes of MEMOLUB® Lubricators.

Caution: Splitter-MEMO's are carefully pre-filled to 100% capacity at the factory with the same grease ordered in the MEMOLUB® cartridge. Do not open the Splitter-MEMO or manually activate the Stem Valve. In both cases air will be introduced into the system.

3.3 Retrofitting a MEMOLUB®

A MEMOLUB® HPS can be retrofit in the field to a 2-point Splitter-MEMO. Retrofitting is accomplished by removing the black timing ring holder from the brass fitting of the MEMO and placing it on the Splitter-MEMO.

Retrofitting a MEMOLUB® HPS in the field **may** require recharging the Splitter-MEMO with the grease being used. SPLITTER MEMO's purchased without a MEMOLUB® Lubricator have been pre-charged with lithium-based grease at the factory. If incompatible grease or a special grease (e.g. food-grade) is to be used, it will be necessary to recharge the Splitter-MEMO. To do this, use the Zerk grease nipple that is supplied with the Splitter-MEMO to pump the correct grease through the outlet port labeled #1 (see illustration above). This is the outlet port closest to the base of the Splitter-MEMO. The Splitter-MEMO must be recharged without the MEMOLUB® Lubricator mounted on it. Pump grease into outlet port #1until it seeps through the piston at the top of the Splitter.

4 The MEMOLUB® HPS with External Power Control or Supply

4.1 The MEMOLUB® EPC Version

The EPC (External Power Control) version of the MEMOLUB® HPS is ideal for avoiding over-lubrication in applications where machinery is used infrequently or intermittently. The MEMOLUB® EPC operates under its own battery power but the lubricator is turned on and off externally. A 12" lead-wire extending from the base of the lubricator is connected to a relay. This relay is opened and closed in concert with the on-off switch of the machine on which it is being used.
Extension cables and connectors (as shown in picture on previous page) are supplied as a part of this system, and relays are available.

When the relay is closed (machine is operating) the MEMOLUB® operates under its own

battery power and under control of the MEMO program. Upon initial closure of the relay, the MEMOLUB® goes through an immediate output cycle and then reverts control to the preset MEMO program.

The relay may also be controlled by a PLC, permitting ejection cycles to occur based upon cumulative hours of machine runtime, clock hours, or some other event determined by the PLC. For an output cycle to occur, the PLC must close the relay for at least 15 seconds, and there must be a 60-second interval between output cycles. The MEMO program is not used when operating under PLC control; however a white timing ring should be in place.

When operating under External Power Control (EPC) the life of the lubricant cartridge cannot be determined by the setting of the MEMO program. It will therefore be necessary to estimate cartridge change-out based on the MEMO setting and normal machine runtime hours or, if used with a PLC, other criteria being used to control ejection cycles. When the MEMOLUB® EPC is operating under PLC control, the PLC can calculate the cartridge change-out by counting the number of output cycles ordered, and considering the programmed output volume and lubricant cartridge size.

Relay contacts must be gold-plated, and the type of relay used will be dictated by the application. Furthermore, the distance between the MEMOLUB® EPC and the relay will determine the extension-wire gage and the connector sizes. Refer to the price sheets or contact PLI, LLC for pricing and availability of relays, cables, and connectors.

4.2 The MEMOLUB® 4.5VDC, 12VDC & 24VDC EPS Version

The EPS (External Power Supply) version of the MEMOLUB® HPS operates from an external power source, either 4.5VDC, 12VDC or 24VDC, bypassing the unit's battery chamber. A lead-wire extends from the bottom of the lubricator, and must be connected to an external power source in order to operate. Extension cables and connectors are provided by PLI, LLC to facilitate this connection.

External Power may be supplied continuously from a transformer, in which case the MEMOLUB® EPS will operate under program control of the MEMO. Functioning will be identical to that of the standard MEMOLUB® HPS.

Regulated power may also be supplied by a PLC. In this case the program of the PLC may be used to control the ejection cycles by periodically providing power to the MEMOLUB® EPS. The frequency of lubricant ejection cycles can thus be controlled by cumulative hours of machine runtime or clock hours, or some other event determined by the PLC. The duration of the power pulse supplied by the PLC should be approximately 6 seconds. While the MEMO does not control the operation of the unit in this mode of operation, it must still be in place with the white timing ring installed.

When operating under External Power Supply (EPS) the life of the lubricant cartridge cannot be determined by the setting of the MEMO program. The frequency of cartridge change-out is dictated by the PLC criteria (which controls the ejection cycles) and the volume setting of the MEMO. The PLC calculates the cartridge change-out by counting

the number of output cycles ordered and considering the programmed output volume and lubricant cartridge size.

PLI, LLC offers several types of power transformers that are compatible with the MEMOLUB® EPS. If a transformer is purchased elsewhere, it should have the following characteristics:

- High efficiency
- Overload/Over-Voltage protection
- Short-Circuit Protection
- Output Voltage: 4.5- 6VDC, 12VDC or 24VDC
- Output Current: 2Amps peak demand, 1Amp working demand

Electrical Wiring

- At the outlet of the MEMOLUB® EPS:
  - \+ Brown
  - \- White
- Length and type of wire to use between MEMOLUB® EPS and transformer:
  AWG 20 (Cross section 2 x 0.5mm²) – 16 feet (5 meters) or less
  AWG 18 (Cross section 2 x 1.0mm²) – 33 feet (10 meters)

In the case of pole inversion, the MEMOLUB® EPS will not work. The transformer can only supply power to one lubricator at a time. For multiple lubricators, multiple transformers must be used.

4.3 *The MEMOLUB® PLCd 24VDC Controlled Version*

The MEMOLUB® PLCd 24VDC Controlled model lubricator is especially designed for PLC-controlled machinery (or mobile equipment) where a 24VDC power supply is available. The PLC supplies the power and controls the frequency of output cycles. It is ideal for lubricating a wide variety of robots, conveyors, and OEM applications. This model can be used for single-point applications or lubricating from 2 to 12 lube points with a MEMOLUB® Multi-Point Lubrication System.

The MEMOLUB® PLCd 24VDC Controlled lubricator has a unique design utilizing a Power-Through Memo which contains the electrical connections needed to power the unit. This gives the user the ability to quickly remove the lubricator for fast lubricant cartridge change-out while avoiding disconnecting the electrical connections. A 5-foot extension cable on the Power-Through Memo is connected to a PLC-controlled power supply. Because the PLC program controls the frequency of lubrication output cycles, they may be based upon elapsed clock hours, machine cycles, a count of parts produced, or other desired criteria. Further control is provided by adjusting the volume of lubricant ejected on each cycle. A set of 8 special stroke-limiting washers are supplied with each lubricator. When the Power-Through Memo is used without washers (yielding full piston stroke), the output volume at each stroke is 0.635cc. For each washer (including the "C"-

shaped lock washer) inserted into the brass adapter of the Power-Through Memo, the output volume is decreased by 0.04cc per stroke.
(Note: The lock washer should always be inserted last to hold the others in place.)

Output per spacer washers:

0 = 0.63cc/stroke	3 = 0.51cc/stroke	6 = 0.39cc/stroke
1 = 0.59cc/stroke	4 = 0.47cc/stroke	7 = 0.35cc/stroke
2 = 0.55cc/stroke	5 = 0.43cc/stroke	8 = 0.31cc/stroke

Please see Appendix for Installation Instructions

Specifications:

* PLC-controlled lubrication cycles
* 2-wire, 5ft extension cable, Brown(+), Blue(-)
* Input voltage: 24VDC
* Max Amps: .5A
* Single cycle duration: 7.5 seconds
* Minimum time between output cycles: 10 Minutes
* Maximum continuous running time: 30 Seconds
* Polarity Protection

5 Accessories

5.1 Tubing

Only tubes rated at a minimum working pressure of 580psi should be used. Polyamide tubes (air) are not suitable for use with the MEMOLUB® HPS. Keep in mind that a tube's pressure resistance diminishes with increased temperature. The following table lists the appropriate tubing for a particular ambient temperature range:

Tube Material	Working Temperature
Nylon (Rilsan)	Less than 158°F (70°C)
Copper	Less than 320°F (160°C)
Stainless Steel	Less than 482°F (250°C)

Nylon tubes (Rilsan) can be used in most cases. Transparent tubes are not resistant to UV exposure and should therefore not be used for outdoor applications. Black or colored nylon tubing should be used when exposure to sunlight is a factor. For moving components, use tubing that is adequate and appropriate for that application. When in doubt, consult your tube supplier, your MEMOLUB® distributor, or PLI.

PLI offers tubing of various materials and diameters. This tubing is sold empty (up to 100 feet) or pre-filled with the lubricant of your choice (up to 30 feet). Please note that tubing with an inside diameter of less than ¼" (6mm) is not recommended for grease applications.

5.2 Table of Recommended Pipe and Tubing Lengths

The table is based on the following:

- Tube internal diameter of 1/4 inch (6mm)
- Threads on lube point of no less than 1/8" NPT
- No inner pressure present in the component

Base-Oil Viscosity (@ Working Temp.)	Directly Mounted	Remote (Single Point)	w/Splitter MEMO	w/Distribution Block
100 cSt	ok	40ft (12m)	16ft (5m)	33ft (10m)
700 cSt	ok	30ft (9m)	14ft (4m)	24ft (7m)
1000 cSt	ok	26ft (8m)	13ft (4m)	20ft (6m)
1500 cSt	ok	23ft (7m)	12ft (4m)	18ft (5m)
3000 cSt	ok	18ft (5m)	9ft (3m)	15ft (5m)
5000 cSt	ok	13ft (4m)	7ft (2m)	11ft (4m)
9000 cSt	ok	7ft (2m)	3ft (1m)	7ft (2m)
15000 cSt	ok	3ft (1m)	N/A	3ft (1m)

5.3 Fittings

A variety of adapters, tube fittings, and check valves are available from PLI, LLC or through your MEMOLUB® Distributor. Push-in tube fittings allow "instant" connection of nylon tubing to the lubricator (in single-point applications), distribution block (for multi-point applications), or 2-point splitter. To attach tubing, simply push the tube into fitting until it can go no further. (Be certain that plastic tubing has a square cut.) Holding and sealing is accomplished instantaneously. To detach tubing, simply depress the manual release ring, then pull the tube out of the fitting. Plastic and brass fittings are good for most applications. For high temperatures, steel and stainless steel compression fittings are also available. Refer to the *Installation Parts* section of the Appendix or call for a listing of available fittings.

6 Installation

6.1 Installing the MEMO

Before installing the MEMO on the bearing, the user should manually lubricate the component with the same grease as the one contained in the MEMOLUB®. *Caution: Not all lubricants are compatible. When in doubt, contact PLI, your MEMOLUB® distributor, or your lubricant supplier.*

The MEMOLUB® HPS must be installed in a location where ambient temperature does not exceed 140°F (60°C) and is not exposed to aggressive or corrosive environment or to vibrations. In those cases, refer to *Section 7.2.2: Remote Installation*.

Screw the brass adapter of the MEMO firmly into the bearing or other component. The black plastic timing-ring holder should be installed with the flat surface on the shoulder of the brass adapter. The MEMO should be installed with an end wrench of 21mm or 7/8".

6.2 Opening and Closing the MEMOLUB® HPS

6.2.1 Opening the MEMOLUB® HPS

To open, place the lubricator upright on a flat surface. With one hand on top of the transparent housing, press firmly. With the other hand, hold the ribbed surface of the locking ring and turn it counter-clockwise. Remove the locking ring and the transparent housing.

6.2.2 Closing the MEMOLUB® HPS

To close, use the same technique. Pressing down on the housing, hold the locking ring by its ribbed surface and turn it clockwise until it clicks into the locked position. Ensure that the locking ring locks by holding the ring on its smooth surfaces and turning clockwise. If the housing is correctly locked into place, it will not be possible to open it while holding the locking ring on its smooth surfaces.

6.3 Installing a Grease Cartridge

Replace the grease cartridge using the following procedure:

- Open the MEMOLUB® HPS as described above (*Section 6.2.1*).

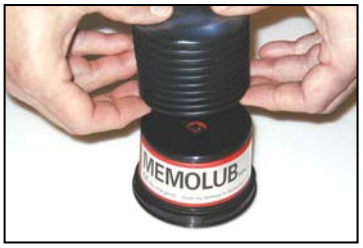
- Prime the MEMOLUB® HPS (if necessary) with a hand grease gun. ***This step is required only if the MEMOLUB® was permitted to operate without a cartridge in place or operate with an empty cartridge.*** Do this by placing the outlet of the hand grease gun on the inlet of the MEMOLUB® HPS and pumping until grease appears at the outlet end of the MEMOLUB® HPS. Two pumps of grease are generally sufficient.

- Lift the black rubber seal back to reveal the battery chamber, and insert the battery pack into the red housing by holding it by its strip. The battery pack has to be inserted according to the instructions on the red housing. When the battery pack is inserted, the motor will be activated for a second. Put the rubber seal back in place. {*Note: The black rubber seal is not used on the Model 480, Giga lubricator.}*

- Remove the paper, disk-shaped label from the replacement cartridge and fill in the following sections: “Start Date” and “Change Date”. The change date is determined by the programming, which can be looked up on your programming chart. Place the label on the inside top surface of the transparent housing, so that the information can be viewed from the top of the lubricator.

- Carefully squeeze air out of the cartridge until grease begins to emerge from the outlet. This step avoids pump airlock and ensures an uninterrupted flow of grease to the piston pump.

- Place the cartridge on the pump inlet of the red housing. Make certain that the cartridge neck is well seated on the pump inlet.



- Place spring and compression plate into the transparent housing, with the compression plate facing the housing opening. Then place the housing assembly (transparent housing, spring and compression plate) over the lubricant cartridge which is seated on the red base. The compression plate should be seated evenly on the lubricant cartridge.

- Lock the transparent housing in place with the black locking ring according to *Section 6.2.2*.

6.4 Installing an Oil Cartridge

Installing an oil cartridge is similar to that for grease, as described in *Section 6.3*, but the oil cartridge cannot be placed upside down on the red housing without spilling. First, lift the black rubber seal back and place the battery pack into the red housing (note: the Giga model, shown at left, does not use rubber seal). Insert the identification label, spring, and compression plate into the transparent housing. Next, hold the oil cartridge **delicately** in one hand and place the red housing on the neck of the cartridge. While holding the oil cartridge firmly on the red housing, reverse their position. Place the red housing and cartridge on a hard surface and place transparent housing on top. Lock as instructed in *Section 6.2.2*.

6.5 Testing the MEMOLUB® HPS (Check Function)

To ensure that the MEMOLUB® HPS is working, gently push on one of the three switches at the bottom of the red housing for a few seconds. The MEMOLUB® HPS will then go through an ejection cycle. This will confirm that electronics, mechanics and batteries are okay. It is important that this be done only with a lubricant cartridge installed. Operating the MEMOLUB® HPS without a cartridge or with an empty cartridge will "un-prime" the pump (refer to *Section 6.3: Installing a Grease Cartridge*).

6.6 Mounting the MEMOLUB® HPS onto the MEMO

Screw the MEMOLUB® HPS lubricator onto the MEMO (which should already be screwed into the bearing housing) using care not to damage the threads. Once the MEMOLUB® HPS is mounted onto the MEMO, it will immediately start one or two ejection cycles. This is the test function.

6.7 Testing the MEMOLUB® HPS (While Mounted)

The MEMOLUB® HPS can be checked at any time while in operation. To do so, unscrew the MEMOLUB® HPS from the MEMO approximately one turn and then screw it back down (hand-tight). If the unit is working properly, it will immediately complete one ejection cycle. If, due to a noisy environment, it is not possible to hear the MEMOLUB® HPS functioning during this test, unscrew the MEMOLUB® HPS completely from the MEMO, go to a quieter location, and follow the instructions in *Section 6.5*.

6.8 Maintenance

The MEMOLUB® HPS does not require any specific maintenance. When used in humid

or dusty atmospheres the MEMOLUB® HPS can be cleaned with compressed air or a slightly damp rag. ***Important:*** *To clean the MEMOLUB® HPS do not use solvents or submerse the unit in any liquid. A Dust/Rain cover is available that can also be used to keep the MEMOLUB® HPS clean*.

7 Mounting Do's and Don'ts

7.1 General

In general, the MEMOLUB® HPS should be installed where it can be easily serviced and where the operating conditions (temperature, vibrations, etc.) is not too harsh. When remote installation is necessary, use only fittings and tubing that are appropriate for your application. The fitting threads should be sealed to assure optimal performance of your system. To obtain a good seal on all screwed fittings, it is preferable to use Teflon® tape or a paste.

7.2 Single-Point Installation

7.2.1 Direct Installation

Avoid installing the MEMOLUB® HPS directly onto vibrating components or components exposed to a harsh chemical environment or temperatures above 120°F. For those situations, install the MEMOLUB® HPS remotely (*see Section 7.2.2*). If it is not possible to install the MEMOLUB® HPS remotely, use appropriate equipment (such as vibration mounts, special protection baffles, etc…) to protect the lubricator. Ask your MEMOLUB® distributor or call PLI for more details.

The brass fitting on the MEMO has ¼" NPT thread. If the female thread on your bearing housing is not ¼" NPT, use available reduction fittings. Avoid using a reduction fitting that is smaller than ¼"-28 straight (if installed vertically) or smaller than 1/8" NPT (if installed horizontally). Do not install MEMOLUB® HPS horizontally on even slightly vibrating components. The MEMOLUB® HPS fitted directly on the lube point can be used with greases having a base-oil viscosity of up to 15,000cSt at working temperature. For assistance in determining the base-oil viscosity of a lubricant at working temperature, contact your lubricant supplier or PLI.

7.2.2 Remote Installation

When remotely mounting the MEMOLUB® HPS, tubing should have an inside diameter of no less than 1/4" (6mm) and should not exceed 40 feet in length when the ambient temperature is 68°F or higher and when using a lubricant with a base-oil viscosity of 100cSt (refer to table in *Section 5.2*). When in doubt, consult PLI or your MEMOLUB® distributor.

7.3 Mounting with the 2-Point Splitter (Splitter- MEMO)

The Splitter-MEMO must be mounted with tubing of 1/4" (6mm) minimum internal diameter and with lubricant having a maximum base-oil viscosity of 9,000cSt at working temperature (refer to the table in *Section 5.2*). Best results will be achieved when both tubes are the same length.

7.4 Mounting with the Progressive Distribution Block

Use only progressive distribution blocks supplied or recommended by PLI. Using other distribution blocks could lead to malfunctions and overall mechanical failures.

When mounting, do not obstruct the inlet valve of the distribution block with sealing paste or any other sealing material. Never plug an outlet on the distribution block with anything other than a coupler element provided by PLI (see *Section 2.3*). Doing so would completely stop lubricant flow in the system. The MEMOLUB® distribution blocks have 1/8" BSPT inlet and outlet threads.

If the need arises, it is possible to install the MEMOLUB® HPS remotely up to 6 feet from the distribution block. When this is done, however, the distance between distribution block and lube points will have to be reduced by the same length. Some grease may not be suitable for use with the distribution block.

8 Troubleshooting

8.1 The MEMOLUB® HPS does not work

Perform a manual test of the MEMOLUB® HPS by using a MEMO with all three timing rings in the ring-holder. If the MEMOLUB® HPS does not work, check the following:

- Is there a battery pack in the MEMOLUB® HPS and is it correctly inserted?
- Are the batteries okay? Use another battery pack to check.
- Is there a plastic ring inside the ring-holder? If not, no switch will be activated and the MEMOLUB® HPS will not work.

8.2 No lubricant is coming out of the MEMOLUB® HPS

If the MEMOLUB® HPS does function, and no grease comes out of the unit when doing a manual test, consider the following:

- Is there a lubricant cartridge installed? If not, recharge the unit with a cartridge as described in *Section 6.3*.
- Were the spring and compression plate inserted correctly inside the transparent housing dome? (See *Section 6.3*)
- Is the pump of the MEMOLUB® HPS primed? If the MEMOLUB® HPS cartridge was completely emptied before replacement, some air could have been sucked into the system and the pump would be pumping air for a certain number of cycles. Place a hand grease gun on the inlet of the red housing and pump grease through the unit (See *Section 6.3*). If a grease gun is not available, prime the pump by manually cycling the MEMOLUB® approximately 10 times while the new cartridge is in place (see *Section 6.5*).

8.3 The lubricant cartridge does not empty correctly

If the MEMOLUB® HPS functions and lubricant is ejected, however, the lubricant

cartridge does not empty or not in the predicted timing, check the following:

- Is the tubing clogged? Use a hand grease gun to clear tubing.
- Is one of the outlets of the distributor block obstructed? Use a hand grease gun and maintenance adapter (available through PLI) to flush the distribution block until grease runs freely from all ports in equal amounts.
- Is tubing damaged? Replace tubing.
- Is counter-pressure higher than 290psi? Only use tubing with ¼" (6mm) inner diameter or more, fittings with 1/8" NPT threads or higher, and a maximum 12-point distribution block. When counter-pressure is between 290psi and 350psi, the MEMOLUB® HPS will empty at a slower pace.
- At working temperature, the base-oil viscosity of the grease is higher than what's described in *5.2 Table of pipe and tubing lengths*. Use a grease appropriate for your application.
- The constant temperature where the MEMOLUB® HPS is used is too cold for the standard alkaline battery pack. Use cold weather (Lithium) battery packs in extreme cold situations (*refer to section 1.4.2: Battery Packs*).

8.4 Lubricant does not get to the application

If the MEMOLUB® HPS does function and empty correctly, however no lubricant is getting into the component:

a) Tubing is damaged and should be replaced.
b) A fitting is not correctly screwed in or the seal may be missing.

9 Warranty

PLI, LLC warrants the MEMOLUB® Lubricator against defects in material and workmanship under normal use for two years from the date of original purchase. This warranty extends to the original purchaser only and can not be transferred. During the warranty period PLI, LLC will, at its option, repair the lubricator with new or reconditioned parts, replace the unit with a new or reconditioned lubricator or refund the purchase price. Repaired or replaced lubricators are warranted for 90 days or for the remainder of the original warranty period, whichever is longer. All lubricators or parts returned under this warranty become the property of PLI, LLC. The warranty does not apply to defects or damage resulting from abnormal use, misuse, mishandling, accident or tampering. PLI, LLC is not responsible for consequential damages beyond replacement or refund of amount paid. It is the user's responsibility to regularly check the correct functioning of the product. This warranty is valid only in the USA, Canada and Mexico.

APPENDIX

MEMOLUB® HPS Specifications

Applications……...Up to 12 Lube Points (with distribution block)
Operating Pressure……..350psi (25 bar)
Pressure Build-up……Immediate
Check Function……...Yes
Stop/Start……Immediate
Temperature Range…….5°F to 120°F (-15°C to 50°C)
Electronic Controls…….Quartz Timer, Microprocessor
Lubricants……...Oils and Greases (to NLGI #2)
Battery Pack……4.5v Alkaline (optional Lithium)
Housing……...Translucent Polycarbonate
Installation Thread……..¼" NPT (adaptors optional)
Remote Installation…….Up to 40 feet (12 meters)
Reusable……..Yes
Dimensions:
- Standard (Model 120).…….4 ½" x 4" (115mm x 101mm)
- Mega (Model 240)……...5 ¾" x 4" (147mm x 101mm)
- Giga (Model 480)……10 3/8" x 4" (264mm x 101mm)

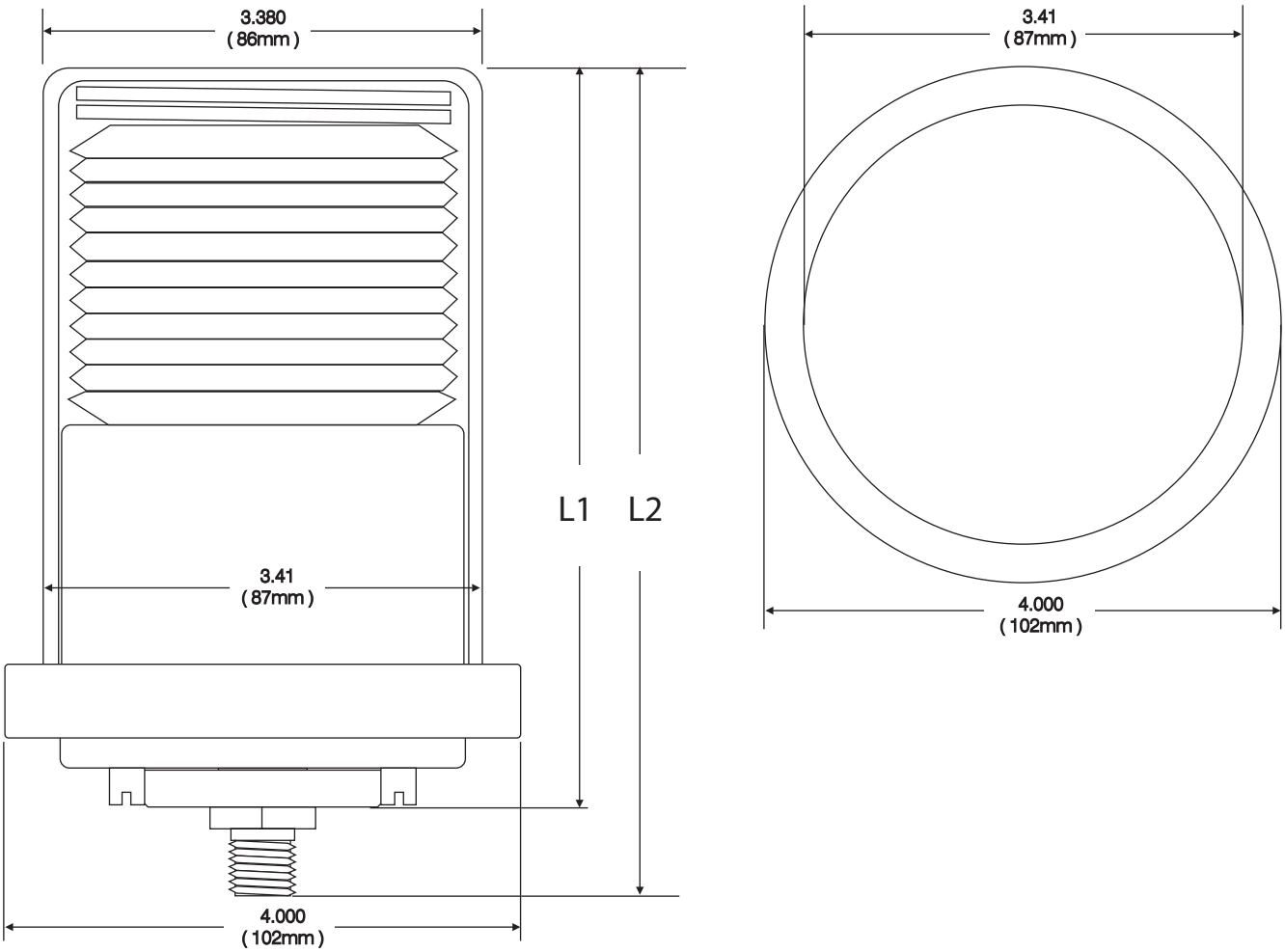
Cartridge Capacity:
- Standard (Model 120)……..120cc (approx. ¼ pound)
- Mega (Model 240)……...240cc (approx. ½ pound)
- Giga (Model 480)……480cc (approx. 1 pound)

Output Adjustment…….....52 Settings

Typical Applications:

- Conveyors
- Pumps
- Electric Motors
- Bridge, Stacker, and Jib Cranes
- Air Makeup Units
- Roof Fans
- Air Conditioners
- Industrial Robots
- Waste-Water Equipment
- Heat-Treat Furnaces
- Coal-Handling Equipment
- Paper Mill Equipment
- Mining Equipment
- Production Equipment of All Kinds

MEMOLUB® HPS STANDARD - MEGA - GIGA



Metric	in mm	
Model	**L1**	**L2**
Standard Model 120	116	135
Mega Model 240	147	167
Giga Model 480	229	248
English	in inches	
Model	**L1**	**L2**
Standard Model 120	4.560	5.300
Mega Model 240	5.800	6.563
Giga Model 480	9.000	9.750

MEMOS - Setting The Output Rate

MEMOs are the method used to set the output rate of the MEMOLUB® Lubricator. Once programmed, the MEMO is screwed into the bearing and remains there unless it is decided to change the output rate. The MEMOLUB® Lubricator is then screwed onto the MEMO. This turns the lubricator on to eject lubricant at the rate of output programmed.

MEMOs are supplied with 3 colored plastic rings (black, white and red) and a black plastic ring holder. The timing of lubricant ejection cycles is determined by which ring or combination of rings are placed in the ring holder. The number of ejection cycles per day, determines the volume of lubricant entering the bearing. With each output cycle, 0.63 cc's of lubricant is injected into the bearing. The rates of daily lubricant output using different ring combinations are shown in the following chart.

To inject daily quantities of lubricant into your bearing other than those shown in the **Basic Settings** chart, refer to **Fine Tuning Your Lubrication Program**. Using the "Stroke Limiting Washers" it is possible to select from 52 different rates of injection.

MEMOLUB® HPS Lubricator Basic Settings (The Simple Approach)

Note: B = Black Ring / W = White Ring / R = Red Ring

Memo Program				Model 120 HPS	Model 240 HPS	Model 480 HPS
Rings (color)	Strokes Per Day	CC's per Cycle	Daily Output in CC's	Months To Empty	Months To Empty	Months To Empty
RWB	24	0.63	15.1	—	0.5	1
RW	12	0.63	7.6	0.5	1	2
RB	4	0.63	2.5	1.5	3	6
R	2	0.63	1.3	3	6	12
BW	1.5	0.63	1.0	4	8	16
W	1	0.63	0.6	6	12	24
B	0.5*	0.63	0.3	12	24	—

* Ejection cycle every other day (48 hours)

LUBRICANT OUTPUT PROGRAMMING

Timing Ring Color

R = Red Ring
W = White Ring
B = Black Ring

Timing Rings	# Of Washers	CC's Per Stroke	Daily Output in CC's	Model 120 HPS 120 cc Capacity: Days To Empty	Weeks To Empty	Months To Empty	Model 240 HPS 240 cc Capacity: Days To Empty	Weeks To Empty	Months To Empty	Model 480 HPS 480 cc Capacity: Days To Empty	Weeks To Empty	Months To Empty
RWB	**24 Strokes Per Day**											
	0	0.63	15.12	7.9	1		15.9	2	0.5	31.7	4	1
	1	0.59	14.16	8.5	1		16.9	2		33.9	4	
	2	0.55	13.20	9.1	1		18.2	3		36.4	5	
	3	0.51	12.24	9.8	1		19.6	3		39.2	5	
	4	0.47	11.28	10.6	1		21.3	3		42.6	6	
	5	0.43	10.32	11.6	1		23.3	3		46.5	6	
	6	0.39	9.36	12.8	1		25.6	4		51.3	7	
	7	0.35	8.40	14.3	2		28.6	4		57.1	8	
RW	**12 Strokes Per Day**											
	0	0.63	7.56	15.9	2	0.5	31.7	5	1	63.5	9	2
	1	0.59	7.08	16.9	2		33.9	5		67.8	9	
	2	0.55	6.60	18.2	2		36.4	5		72.7	10	
	3	0.51	6.12	19.6	2		39.2	6		78.4	11	
	4	0.47	5.64	21.3	3		42.6	6		85.1	12	
	5	0.43	5.16	23.3	3		46.5	7		93.0	13	3
	6	0.39	4.68	25.6	3		51.3	7		102.6	14	
	7	0.35	4.20	28.6	4		57.1	8		114.3	16	
	8	0.31	3.72	32.3	4	1	64.5	9	2	129.0	18	4
RB	**4 Strokes Per Day**											
	0	0.63	2.52	47.6	6	1.5	95.2	12	3	190.5	27	6
	1	0.59	2.36	50.8	7		101.7	14		203.4	29	
	2	0.55	2.20	54.5	8		109.1	15		218.2	31	
	3	0.51	2.04	58.8	8		117.6	17		235.3	33	
	4	0.47	1.88	63.8	9		127.7	18		255.3	36	
	5	0.43	1.72	69.8	10		139.5	20		279.1	39	
	6	0.39	1.56	76.9	11		153.8	22		307.7	43	
	7	0.35	1.40	85.7	12		171.4	24		342.9	49	
R	**2 Strokes Per Day**											
	0	0.63	1.26	95.2	13	3	190.5	26	6	381.0	54	12
	1	0.59	1.18	101.7	14		203.4	28		406.8	58	
	2	0.55	1.10	109.1	15		218.2	30		436.4	62	
	3	0.51	1.02	117.6	16		235.3	32		470.6	67	
BW	**1.5 Strokes Per Day****											
	0	0.63	0.95	127.0	18	4	254.0	36	8	507.9	72	16
	1	0.59	0.89	135.6	19		271.2	38		542.4	77	
	2	0.55	0.83	145.5	20		290.9	40		581.8	83	
	3	0.51	0.77	156.9	22		313.7	44		627.5	89	
	4	0.47	0.71	170.2	24		340.4	48		680.9	97	
	5	0.43	0.65	186.0	26		372.1	52		744.2	106	
W	**1 Strokes Per Day**											
	0	0.63	0.63	190.5	27	6	381.0	54	12	761.9	108	24
	1	0.59	0.59	203.4	29		406.8	58				
	2	0.55	0.55	218.2	31		436.4	62				
	3	0.51	0.51	235.3	33		470.6	66				
	4	0.47	0.47	255.3	36		510.6	72				
	5	0.43	0.43	279.1	39	9	558.1	78	18			
	6	0.39	0.39	307.7	44		615.4	88				
	7	0.35	0.35	342.9	49		685.7	98				
B	**0.5 Stokes Per Day*****											
	0	0.63	0.32	381.0	54	12	761.9	108	24			
	1	0.59	0.30	406.8	58							
	2	0.55	0.28	436.4	62							
	3	0.51	0.26	470.6	67							
	4	0.47	0.24	510.6	73							
	5	0.43	0.22	558.1	79	18						
	6	0.39	0.20	615.4	87							
	7	0.35	0.18	685.7	97							
	8	0.31	0.16	774.2	110	24						

* We recommend that Battery Packs and Lubricant Cartridges be changed at no more than 12 month intervals
** Ejection cycle every 16 hours
*** Ejection cycle every other day

How to order your complete Multi-Point Lubrication System

A complete MEMOLUB® MPS (Multi-Point System) can be ordered by using the quick coding below. Simply replace the "X's" with the code corresponding to your selection in the sub-menus. Additional installation parts and nylon tubing (empty or pre-filled with lubricant) are also available.

MPS - XXX - XXX - XX - X - XXX

Lubricator size

120 = Standard HPS Model 120 (120cc of lubricant)
240 = Mega HPS Model 240 (240cc of lubricant)
480 = Giga HPS Model 480 (480cc of lubricant)

Power Options

R = HPS - Regular Configuration, Alkaline Battery Pack
L = HPS - with Cold Temperature Lithium Battery Pack
C = EPC - External On/Off Control, Battery Powered and MEMO Controlled
S0 = EPS - 4.5VDC Externally Powered - MEMO Controlled
S11 = EPS - 12VDC Externally Powered - MEMO Controlled
S21 = EPS - 24VDC Externally Powered - MEMO Controlled
P0 = PLCd - 24VDC Externally Powered and Controlled

Power Transformers and wire extension kits are available for all EPC, EPS and PLCd MEMOLUB® Power Options. Please call for availability.

Number of outlet ports

Refer to Set-up Guide for details

02 = 2 outlet ports (2 outlets @ .6 cc's)
03 = 3 outlet ports (3 outlets @ .6 cc's)
04 = 4 outlet ports (4 outlets @ .3 cc's)
05 = 5 outlet ports (4 outlets @ .3 cc's, 1 outlet @ .6 cc's)
06 = 6 outlet ports (6 outlets @ .3 cc's)
07 = 7 outlet ports (6 outlets @ .3 cc's, 1 outlet @ .6 cc's)
08 = 8 outlet ports (8 outlets @ .3 cc's)
09 = 9 outlet ports (6 outlets @ .3 cc's, 3 outlets @ .6 cc's)
10 = 10 outlet ports (8 outlets @ .3 cc's, 2 outlets @ .6 cc's)
11 = 11 outlet ports (10 outlets @ .3 cc's, 1 outlet @ .6 cc's)
12 = 12 outlet ports (12 outlets @ .3 cc's)

Type of Distribution Block

O = Oil
G = Grease

Bearing Fittings

5/16" (8mm) OD Nylon Tubing Fittings
(These systems use IF3109-08-10 Block Fittings)

Plastic Push-In Fittings
01 = Straight 1/8" NPTM - (IF3175-08-11)
02 = Straight 1/4" NPTM - (IF3175-08-14)
03 = 90° - 1/8" NPTM - (IF3109-08-11)
04 = 90° - 1/4" NPTM - (IF3109-08-14)

Stainless Steel Push-In Fittings
SS1 = Straight 1/8" NPTM - (IF3805-08-11)
SS2 = Straight 1/4" NPTM - (IF3805-08-14)
SS3 = 90° - 1/8" NPTM - (IF3889-08-11)
SS4 = 90° - 1/4" NPTM - (IF3889-08-14)

1/4" OD Nylon Tubing Fittings
(These systems use IF3109-56-10 Block Fittings)

51 = Straight 1/8" NPTM - (IF3175-56-11)
52 = Straight 1/4" NPTM - (IF3175-56-14)
53 = 90° - 1/8" NPTM - (IF3109-56-11)
54 = 90° - 1/4" NPTM - (IF3109-56-14)

5/16" (8mm) OD Copper Tubing Compression Fittings
(These systems use IF3175-08-10CCP Block Fittings)

CC1 = Straight 1/8" NPTM - (IF3175-08-11CCP)
CC2 = Straight 1/4" NPTM - (IF3175-08-14CCP)
CC3 = 90° - 1/8" NPTM - (IF3109-08-11CCP)
CC4 = 90° - 1/4" NPTM - (IF3109-08-14CCP)

1/4" OD Copper Tubing Compression Fittings
(These systems use IF3175-56-10CCP Block Fittings)

CC6 = Straight 1/8" NPTM - (IF3175-56-11CCP)
CC7 = Straight 1/4" NPTM - (IF3175-56-14CCP)
CC8 = 90° - 1/8" NPTM - (IF3109-56-11CCP)
CC9 = 90° - 1/4" NPTM - (IF3109-56-14CCP)

5/16" (8mm) OD Steel Tubing Compression Fittings
(These systems use IF3175-08-10SCP Block Fittings)

SC1 = Straight 1/8" NPTM - (IF3175-08-11SCP)
SC2 = Straight 1/4" NPTM - (IF3175-08-14SCP)
SC3 = 90° - 1/8" NPTM - (IF3109-08-11SCP)
SC4 = 90° - 1/4" NPTM - (IF3109-08-14SCP)

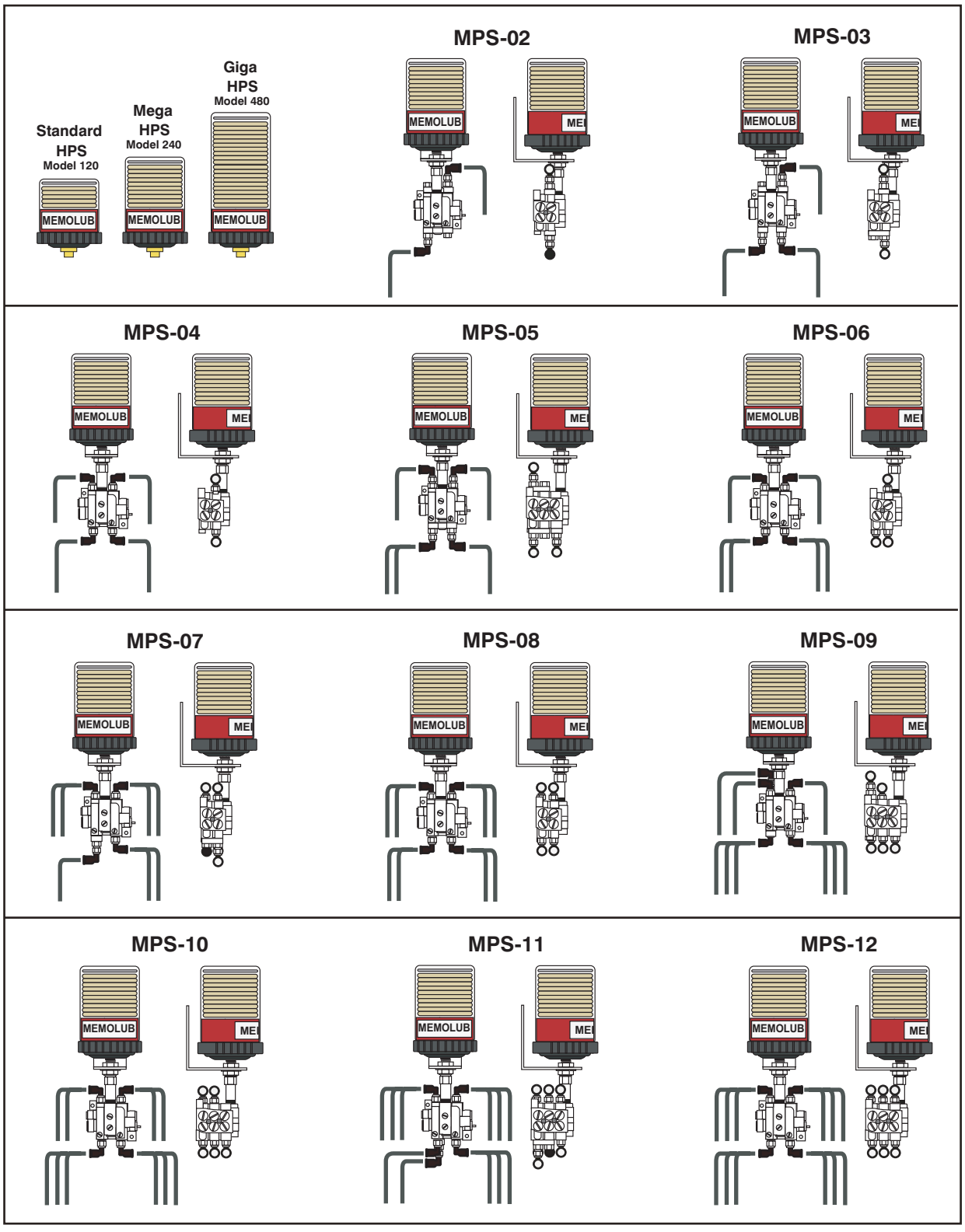
Example:

The part # MPS - 240 - R - 04 - G- 02 will be a Grease system with a 4 point distribution block, a Mega MEMOLUB® HPS Lubricator (Model 240 HPS) with straight bearing fittings having a 1/4" NPT Male thread.

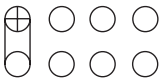
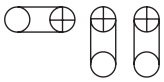
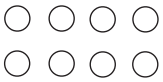
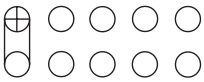
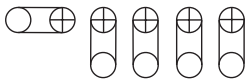
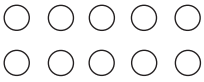
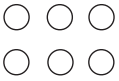
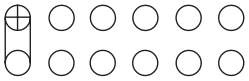
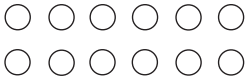
Additional Ordering Information Required:

1. MEMO Setting
   Lubricant output is determined by preprogramming the "MEMO" fitting. Please refer to the MEMOLUB® HPS Lubricator Installation Instructions for proper output settings.
2. Lubricant required.

MEMOLUB® Multi-Point System Configurations



Multi-Point Lubrication Distribution Block Set-Up

Size Distribution Block To Use		Size Distribution Block To Use	
4 Point	**2 Point Distribution**  Use 4 Point Block 2 Horizontal Couplers 2 Outlet Ports @ 0.6cc each	8 Point	**7 Point Distribution**  Use 8 Point Block 1 Vertical Coupler 6 Outlet Ports @ .3cc each 1 Outlet Port @ .6cc
6 Point	**3 Point Distribution**  Use 6 Point Block 1 Horizontal Coupler 2 Vertical Couplers 3 Outlet Ports @ 0.6cc each	8 Point	**8 Point Distribution**  Use 8 Point Block 8 Oulet Ports @ .3cc each
4 Point	**4 Point Distribution**  Use 4 Point Block 4 Outlet Ports @ .3cc each	10 Point	**9 Point Distribution**  Use 10 Point Block 1 Vertical Couplers 8 Oulet Ports @ .3cc each 1 Oulet Port @ .6cc
10 Point	**5 Point Distribution**  Use 10 Point Block 4 Vertical Coupler 1 Horizontal Couplers 5 Outlet Ports @ .6cc each	10 Point	**10 Point Distribution**  Use 10 Point Block 10 Oulet Ports @ .3cc each
6 Point	**6 Point Distribution**  Use 6 Point Block 6 Oulet Ports @ .3cc each	12 Point	**11 Point Distribution**  Use 12 Point Block 1 Vertical Coupler 10 Outlet Ports @ .3cc each 1 Outlet Port @ .6cc
		12 Point	**12 Point Distribution**  Use 12 Point Block 12 Oulet Ports @ .3cc each

On each complete cycle of the Distribution Block, each output port ejects .3 cc's of lubricant. When 2 output ports are coupled using either the horizontal or vertical coupler, one of the output ports is blocked and its output diverted to the second port. The bearing that is connected to a coupled output port receives the lubricant from both ports or .6 cc's per cycle of the Distribution Block.

The actual volume of lubricant flowing from each output port during the period of one day is controlled by the amount of lubricant that has been programmed to be ejected by the MEMOLUB Lubricator. To program the MEMOLUB to eject the required volume of lubricant for a multi-point application, it is necessary to determine the daily volume of grease required by all of the bearings attached to the system. To do this, multiply the requirement for one bearing times the number of output ports on the system. This is the daily output that the MEMOLUB must be programmed to deliver. Bearing lubricant requirements are generally stated in cubic centimeters over some fixed interval of time.

It is important to remember that each bearing on the system will receive an equal amount of grease unless that bearing is receiving lubricant from an output port that has been coupled, in which case it will receive twice as much grease as a bearing that has not been coupled.

For additional assistance in planning your multi-point application or for information on programming the MEMOLUB Lubricator, please contact PLI, LLC.

MEMOLUB "Plug and Lube" Multi-point Lubrication Systems may be ordered completely set up, preprogrammed and ready to install with pre-filled lube lines. Call for more information.

2-Point MEMOLUB® System With Splitter-MEMO Output Programming

Lubricant Output Programming

Timing Rings are placed in the Black Ring Holder individually or in combination. This programs the number of ejected cycles that occur each day and thus the daily lubricant output.

Each output strokes ejects .635 cc's of lubricant. This lubricant is divided between the two output ports.

The Stroke Limiting Washers used with the Single Point MEMOLUB® to adjust the volume of output per stroke are NOT used with the MEMOLUB® HPS 2-Point Splitter System.

R = Red Timing Ring **W = White Timing Ring** **B = Black Timing Ring**

The frequency of cartridge change-out is shown under each HPS model.

Program	Ejection Cycles Per Day	Daily Output in CC's	HPS Standard, Model 120			HPS Mega, Model 240			HPS Giga, Model 480		
			Days to Empty	Weeks to Empty	Months to Empty	Days to Empty	Weeks to Empty	Months to Empty	Days to Empty	Weeks to Empty	Months to Empty
RWB	24	15.24	8	1	-	16	2	-	31	4	1
RW	12	7.62	16	2	-	31	4	1	63	9	2
RB	4	2.54	47	7	1	94	13	3	189	27	6
R	2	1.27	94	13	3	189	27	6	381	54	12
BW	1.5*	0.95	126	18	4	253	36	8	505	72	17
W	1	0.64	189	27	6	381	54	12	750	107	25
B	.5**	0.32	381	54	12	750	107	25	-	-	-

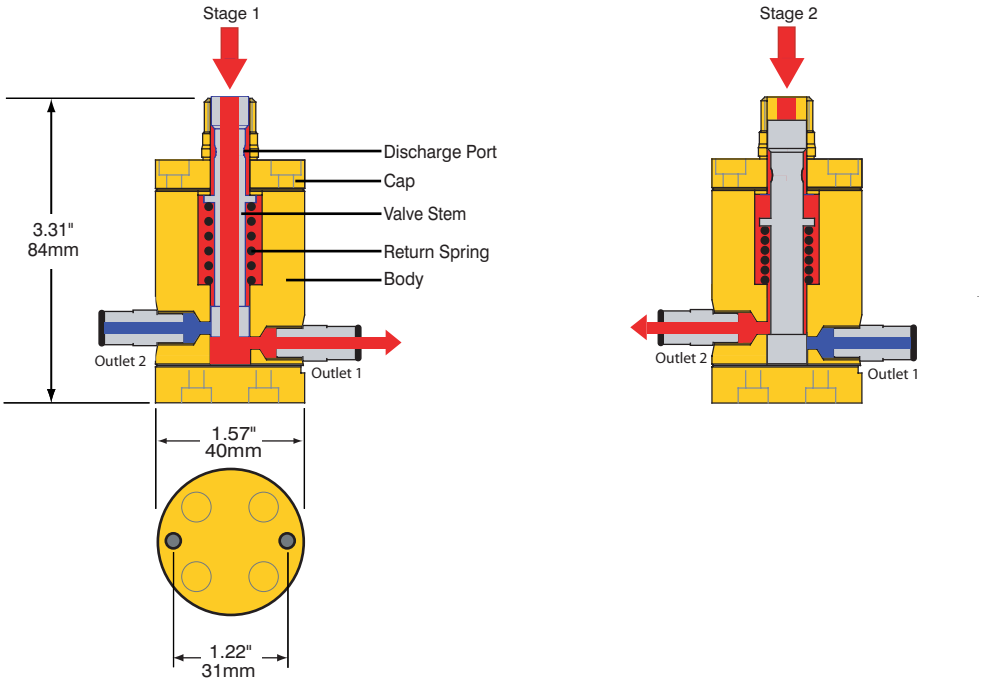
If, at the ejection rate selected, the “Months to Empty” exceed 12 months, it is recommended that the Lubricant Cartridge and Battery Pack be replaced at least every 12 months.

To extend Battery Pack and Lubricant Cartridge change-out to 24 months, we suggest the use of “Cold Weather” Lithium Battery Packs.

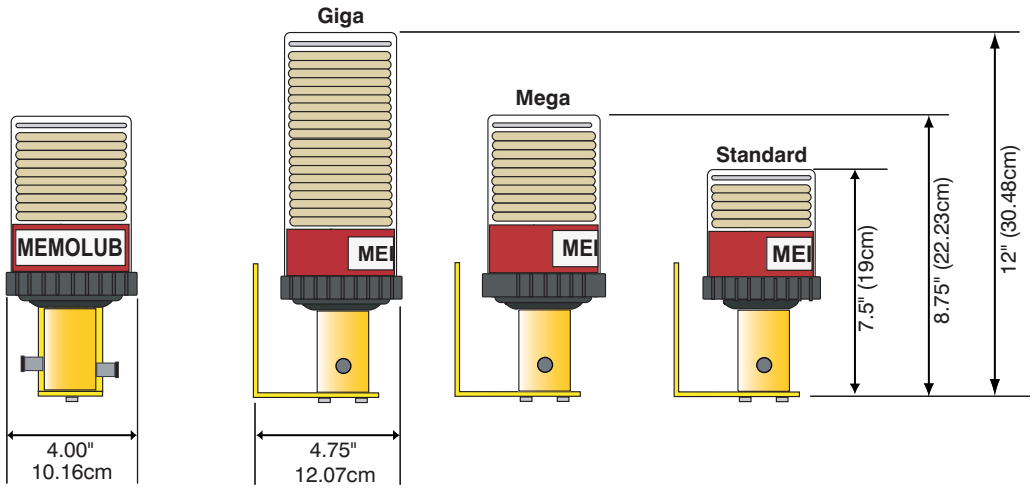
* Ejection cycle occurs every 16 hours. Daily Output shown is average lubricant output per day.
** Ejection cycle occurs every other day. Daily Output shown is average lubricant output per day.

How the Splitter MEMO Works

The Valve Stem is maintained in the upper position by the spring. When the MEMOLUB® HPS ejects lubricant, the MEMOLUB® HPS pump piston simultaneously pushes the Valve Stem downwards. Lubricant flows through the hollow Valve Stem and, as shown in stage 1, out through Outlet 1. As the Valve Stem moves downwards, Outlet 1 is closed and Outlet 2 opens allowing lubricant to flow through it, as shown in stage 2. Upon completion of the output cycle the Return Spring pushes the Valve Stem into the upper position to complete the cycle.



Mounting Dimensions



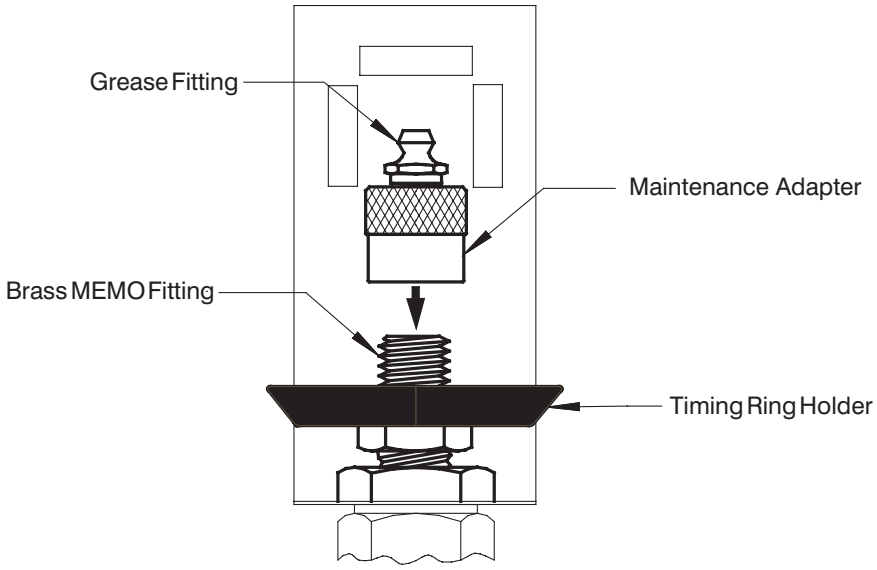
Pre-charging and Annual Maintenance of Lubrication Systems

The Maintenance Adapter can be used to "pre-charge" a remote line or a distribution block and its associated lines. This pre-charge procedure may become necessary during initial equipment installation or when changing the type of grease being used. It can also be used to conveniently add grease to a bearing on which the MEMO has already been installed. The Maintenance Adapter has a M12 x 1.50 female thread, which matches the male thread of the brass MEMO fitting.

The Maintenance Adapter is also useful in flushing old grease from remote lines and distribution systems. It is recommended that this procedure be performed on an annual basis to eliminate the potential problems associated with grease/oil separation that can occur with some greases.

MEMOLUB® Multi-Point Systems ordered as a Plug'n Lube™ system, with tubing that has been pre-filled at the factory, already contains the correct lubricant and does not require filling in the field during installation.

Note: The Maintenance Adapter is not to be used with the 2-Point Splitter System. Please refer to *Section 3.3* for information on the proper procedure to be used in priming the Splitter-MEMO.



If additional Maintenance Adapters are needed they can be ordered as part number: OPMAINTADPT

Mounting Brackets and Dust Covers

Mounting Bracket with Dust Cover

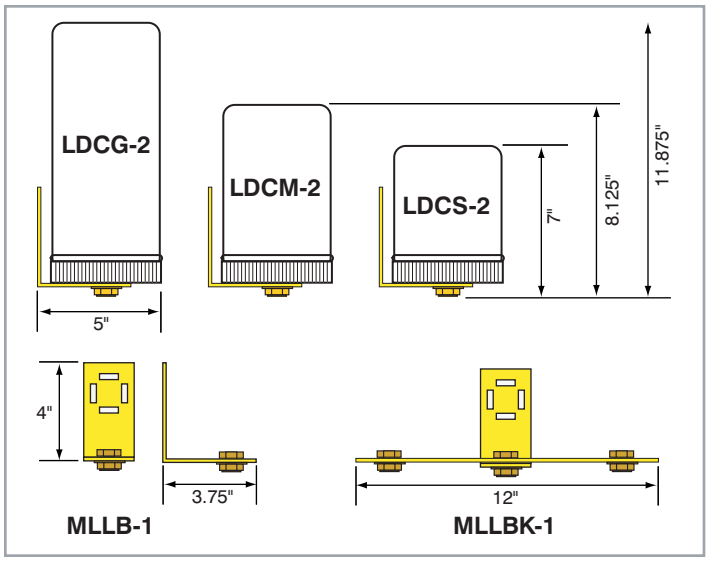
LDCS-2 Standard Model 120
LDCM-2 Mega Model 240
LDCG-2 Giga Model 480

Dust Cover Only

DCS-1	Standard Model 120
DCM-1	Mega Model 240
DCG-1	Giga Model 480
DCSPLIT-120	Splitter Model 120
DCSPLIT-240	Splitter Model 240
DCSPLIT-480	Splitter Model 480

Mounting Bracket Only

MLLB-1	Bracket for 1 lubricator
MLLBK-1	Bracket for 2 or 3 lubricators



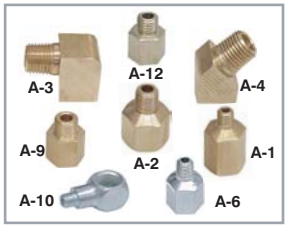
Power Supply Options (used with the MEMOLUB® EPS lubricators)

#OPEPS110AC5V2A
EPS Plug in Power
Run the MEMOLUB® EPS lubricator off any 110VAC outlet with the plug in power transformer.

#OPEPS110AC5V2A2
EPS Rack Mount Power
Connect a 110VAC power supply from your machine or PLC to the rack mount power transformer to run the MEMOLUB® EPS lubricator.

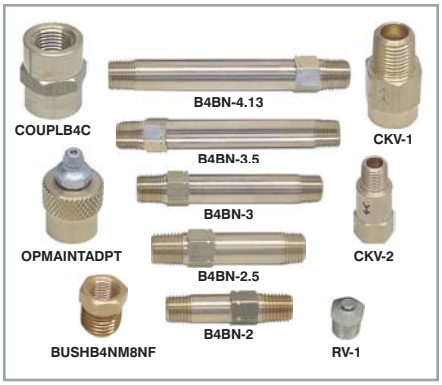
Adapters

A-1	1/4" NPT(F) x 1/4-28 Straight (M), Brass	**A-9**	1/8" NPT(F) x 1/8 BSPT(M), Brass
A-2	1/4" NPT(F) x 1/8" NPT (M), Brass	**A-10**	1/8" NPT(F) x 1/4-28 Straight (M) x 90°, Steel
A-3	1/4" NPT(F) x 1/4" NPT(M) x 90°, Brass	**A-11**	1/8 BSPT(F) x (8M x 1.0)(M), Brass
A-4	1/4" NPT(F) x 1/4" NPT(M) x 45°, Brass	**A-12**	1/8" NPT(F) x (8M x 1.25)(M), Brass
A-5	1/8" NPT(F) x 1/8" NPT(M) x 45°, Brass	**A-13**	1/8 BSPT(F) x 1/8 NPT(M), Brass
A-6	1/8" NPT(F) x 1/4-28 Straight (M), Steel	**A-15**	1/8" NPT(F) x 1/8 BSPT(M), Steel
A-7	1/2" NPT(F) x 1/4" NPT(M), Steel	**A-16**	1/8" NPT(F) x (6M x 1.0)(M)PP, Steel
A-8	1/4" NPT(F) x 1/4" NPT(M), Brass	**A-17**	1/8" NPT(F) x (6M x .75)(M)PP, Steel



Other Parts

B4N-1.375H	1/4" NPT(M) x 1/4" NPT(M) x 1.375", Brass Hex Nipple
B4BN-1H	1/4 BSPT(M) x 1/4" NPT(M) x 1", Brass Hex Nipple Adapter
B4BN-2	1/4 BSPT(M) x 1/4" NPT(M) x 2", Brass Hex Nipple Adapter
B4BN-2.5	1/4 BSPT(M) x 1/4" NPT(M) x 2.5", Brass Hex Nipple Adapter
B4BN-3	1/4 BSPT(M) x 1/4" NPT(M) x 3", Brass Hex Nipple Adapter
B4BN-3.5	1/4 BSPT(M) x 1/4" NPT(M) x 3.5", Brass Hex Nipple Adapter
B4BN-4.13	1/4 BSPT(M) x 1/4" NPT(M) x 4.13", Brass Hex Nipple Adapter
BUSHB4NM8NF	1/8" NPT(F) x 1/4" NPT(M), Brass Bushing
CKV-1	1/4"NPT(F) → 1/4"NPT(M), 3 psi cracking pressure, Check Valve
CKV-2	1/8"NPT(M) → 1/8"NPT(F), 3 psi cracking pressure, Check Valve
CKV-3HP	1/4"NPT(F) → 1/4"NPT(M), 5 psi cracking pressure, HP Check Valve
CKV-4	1/4"NPT(F) → 1/4"NPT(M), 15 psi cracking pressure, Check Valve
COUPLB4C	1/4" NPT(F) x 1/4" NPT(F), Brass Coupler
OPMAINTADPT	Maintenance Adapter
RV-1	1/8" NPT(M) x 1 PSI Cracking Pressure, Relief vent



Push-in Tube Fittings

6mm OD Tube Fittings:

3101-06-19	M5(M), Straight
3106-06-00	6mmOD x 6mmOD Tube to Tube Straight
3109-06-10	1/8BSPT(M) x 90°
3109-06-11	1/8"NPT(M) x 90°
3109-06-14	1/4"NPT(M) x 90°
3109-06-6MPC	M6(M) x 90°
3114-06-10	1/8BSPT(F), Straight
3114-06-13	1/4BSPT(M), Straight
3169-06-13	G1/4BSPP(M) x 90°
3175-06-10	1/8BSPT(M), Straight
3175-06-11	1/8"NPT(M), Straight
3175-06-6MMPC	M6(M), Straight
3199-06-19	M5(M) x 90°

1/4" OD Tube Fittings:

3009-56-11	1/8"NPT(F) x 90°
3014-56-11	1/8"NPT(F), Straight
3014-56-14	1/4"NPT(F), Straight
3109-56-10	1/8BSPT(M) x 90°
3109-56-11	1/8"NPT(M) x 90°
3109-56-14	1/4"NPT(M) x 90°
3171-56-20	10-32UNF(M), Straight
3175-56-11	1/8"NPT(M), Straight
3175-56-14	1/4"NPT(M), Straight

5/16" (8mm) OD Tube Fittings:

3009-08-11	1/8"NPT(F) x 90°
3009-08-14	1/4"NPT(F) x 90°
3014-08-11	1/8"NPT(F), Straight
3014-08-14	1/4"NPT(F), Straight
3106-08-00	8mmOD x 8mmOD Tube to Tube, Straight
3109-08-10	1/8BSPT(M) x 90°
3109-08-11	1/8"NPT(M) x 90°
3109-08-13	1/4BSPT(M) x 90°
3109-08-14	1/4"NPT(M) x 90°
3168-08-06	8mmOD(F) x 6mmOD(M) Expander
3169-08-13	G1/4BSPP(M) x 90°
3169-08-17	G3/8BSPP(M) x 90°
3175-08-10	1/8BSPT(M), Straight
3175-08-11	1/8"NPT(M), Straight
3175-08-13	1/4BSPT(M), Straight
3175-08-14	1/4"NPT(M), Straight
3805-08-10	1/8BSPT(M), Straight Stainless Steel
3805-08-11	1/8"NPT(M), Straight Stainless Steel
3805-08-14	1/4"NPT(M), Straight Stainless Steel
3889-08-10	1/8BSPT(M) x 90° Stainless Steel
3889-08-11	1/8"NPT(M) x 90° Stainless Steel
3889-08-14	1/4"NPT(M) x 90° Stainless Steel

3/8" OD Tube Fittings:

3109-60-11	1/8"NPT(M) x 90°
3109-60-14	1/4"NPT(M) x 90°
3175-60-11	1/8"NPT(M), Straight
3175-60-14	1/4"NPT(M), Straight

Tubing and Accessories

Nylon tubing is sold two ways; pre-filled in 5 foot increments from 5 to 30 feet, or empty in any length from 1 to 100 feet.

TB6MM	6mm OD Nylon Tubing
TBP5600	1/4" OD Nylon Tubing
TBP5800A	5/16" (8mm) OD Nylon Tubing
TBP6000	3/8" OD Nylon Tubing
TB3000-71-00	Nylon Tubing Cutter
TBCLIP-08	5/16" (8mm) OD Installation Clip
TB5800CP	5/16" OD Copper Tubing


TBCLIP-08

Plug 'n Lube™ pre-filled tubing

Just specify tubing O.D., length and lubricant desired.

Tubing O.D. — **Tubing Length**

6MM = 6mm OD
056 = 1/4" OD
58A = 5/16" OD
060 = 3/8" OD

TB - XXX - XX - *(Lubricant name)*


TB3000-71-00


Sample: TB-58A-30-Mobilith AW-2

Chain Oil Brush Assemblies

Chain Oil Brush Assembly includes a brush, 18" length of 5/16' OD nylon tubing and 2 push-in tube fittings. We recommend using a check valve (part # CKV-2) with all Chain Oil Brush Assemblies. Mounting brackets are also available for easy installation.

CA-1	Chain Oil Assembly with 2" Flat Nylon Brush
CA-1S	Chain Oil Assembly with 2" Flat Stainless Brush
CA-2	Chain Oil Assembly with 5/8" Round Nylon Brush
CA-2S	Chain Oil Assembly with 5/8" Round Stainless Brush
CA-3	Chain Oil Assembly with 1" Round Nylon Brush
CA-3S	Chain Oil Assembly with 1" Round Stainless Brush
OPLBKT-2	Oil brush mounting bracket

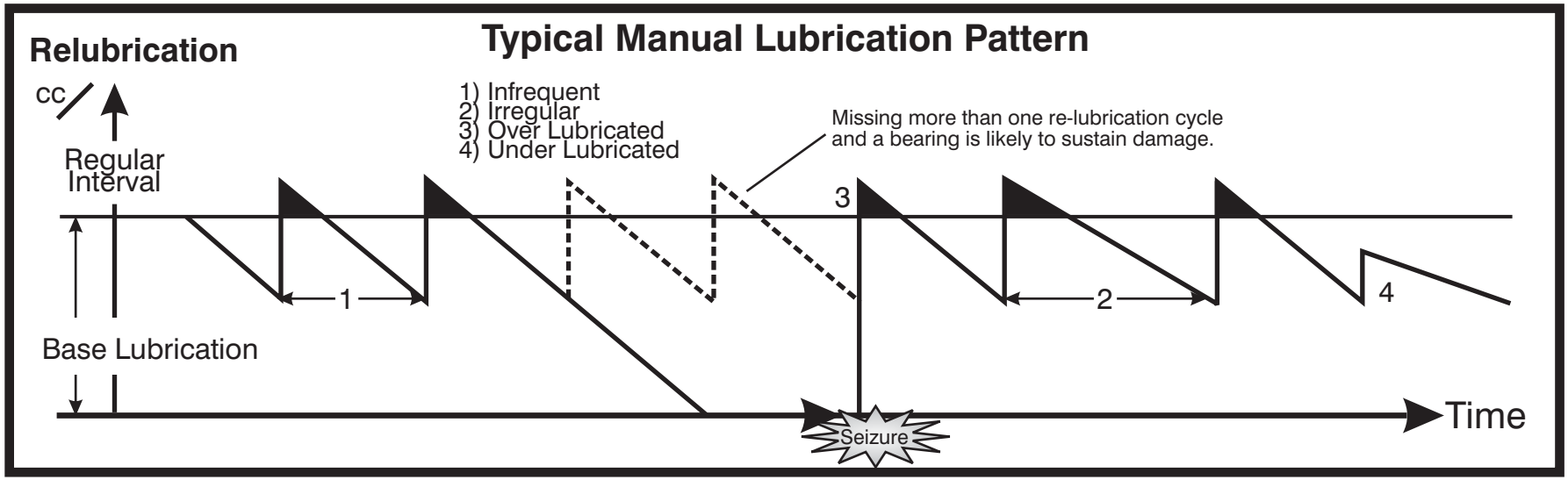
Brushes

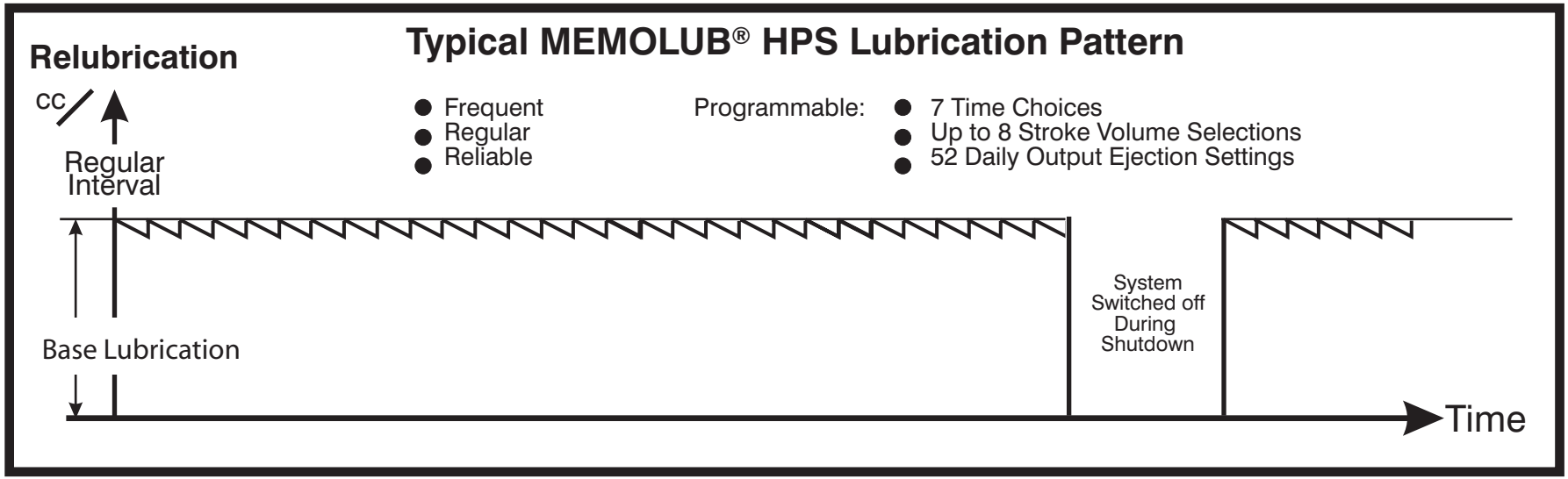
OPBRUSH5/8RD	5/8" Round Nylon Brush
OPBRUSH1RD	1" Round Nylon Brush
OPBRUSH2FLAT	2" Flat Nylon Brush
OPBRUSH5/8RDSS	5/8" Round Stainless Steel Brush
OPBRUSH1RDSS	1" Round Stainless Steel Brush
OPBRUSH2FLATSS	2" Flat Stainless Steel Brush


CA-1 with bracket


2" Flat Nylon | **1" Round Nylon** | **5/8" Round Nylon** | **1" Round Stainless Steel**

MEMOLUB® HPS


Typical Manual Lubrication Pattern
Relubrication
cc
Regular Interval
1) Infrequent
2) Irregular
3) Over Lubricated
4) Under Lubricated
Missing more than one re-lubrication cycle and a bearing is likely to sustain damage.
1
2
3
4
Base Lubrication
Seizure
Time


Typical MEMOLUB® HPS Lubrication Pattern
Relubrication
cc
Regular Interval
Frequent
Regular
Reliable
Programmable:
7 Time Choices
Up to 8 Stroke Volume Selections
52 Daily Output Ejection Settings
Base Lubrication
System Switched off During Shutdown
Time

Designed for Limited Hazardous Locations

The MEMOLUB® EX is the same self-contained, battery powered lubricator as the MEMOLUB® HPS model with a modified enclosure rated for limited hazardous locations. *(See rating listed below)*

The MEMOLUB® EX is available in three sizes, the Standard (Model 120), the Mega (Model 240) and the Giga (Model 480). The lubricant cartridges are pre-filled with the customers choice of over 200 stock lubricants, thus eliminating the costly process of manually refilling reservoirs. Lubricant cartridge replacement normally takes less than 1 minute.

The MEMOLUB® EX may be used as a single point lubricator, either mounted directly on the bearing or remotely using pipe or flexible tubing. The MEMOLUB® EX can also be used with our progressive distribution block as a multi-point system, lubricating 2 to 12 bearing points, or with the MEMOLUB® 2 Point Splitter.

Rating:	**EEX nC II T6 - T85°C - IP66**
Group II:	Equipment destined to be used in places where an atmosphere which could explode due to gases and/or dusts can occur.
Category 3:	Equipment made to assure a normal level of protection. Those equipments are destined to be placed in an environment where an explosive atmosphere (due to gases, vapors and dusts) has a little probability to occur.
Applications to Zones 2 and 22:	Places where an explosive atmosphere due to mist, gases or vapors (zone 2) or due to dusts (zone 22) is not likely to occur under normal working conditions.
T6-85°C:	Maximum temperature.
IP-66:	Resist to dust and powerful jets of water.
ISSePO4 ATEX077:	Certificate number and laboratory identification.

MEMOLUB® HPS Specifications:

Dimensions:		Temperature Range:	5°F to 120°F (-15°C to 50°C)
Standard	4-1/2" x 4" (115mm x 101mm)	Operating Pressure:	350psi (25 bar)
Mega	5-3/4" x 4" (147mm x 101mm)	Battery Pack:	4.5V Alkaline (optional Lithium)
Giga	10-3/8" x 4" (264mm x 101mm)	Installation Thread:	1/4" NPT (adapters optional)
Cartridge Capacity:		Remote Installation:	Up to 40 feet (12 meters)
Standard	120cc (approx. 4 ounces)	Applications:	1 to 12 Lube Points (with distribution block)
Mega	240cc (approx. 1/2 pound)	Compatible Lubricants:	Oils and Greases (to NLGI #2)

Battery Operated Lubrication with External Control

The MEMOLUB® EPC offers the advantage of providing automatic lubrication to machines that are infrequently or intermittently used, avoiding the problems of over lubrication.

The lubrication process can be turned on and off in concert with the machine being lubricated or manually using a simple switch.

The MEMOLUB® EPC is battery powered and requires no external power source. It operates under its own MEMO program that you preset. This controls the frequency of lubrication cycles and volume of lubricant injected.

The MEMOLUB® EPC can be mounted directly on the bearing or remote from the bearing using pipe or flexible tubing. It may be used as a Multi-Point System lubricating from 2 to 12 lube points and is available in any of the three MEMOLUB® sizes.

The 12 inch cable that extends from the bottom of the lubricator serves to interrupt the electric circuit to the drive motor. When the circuit is closed the MEMOLUB® first goes through an output cycle and then proceeds to operate under its own preset program control. When the circuit is opened the lubrication process stops.

Extension wire kits are also available in 15 and 30 foot lengths. Eack kit comes with quick connectors to easily remove the MEMOLUB® lubricator during cartridge change-out.

Control over the lubrication process can be achieved in several ways.

* A simple switch can be used to manually turn the lubricator on during machine operation and off when use is complete.

* A relay, that is associated with the main power switch of the machine being lubricated, can be used. Relay contact must be gold plated. The type of relay is determined by the application. The distances between the MEMOLUB® EPC and the relay determines the gauge of the wire and the associated connectors to be used.

* PLC control is also an option in closing and opening the circuit. For an output cycle to occur the PLC must close the circuit for a minimum of 15 seconds and there must be a minimum 60-second interval between output cycles. The timing of ejection cycles is controlled by the PLC. The white timing ring must be in place. The volume of lubricant ejected per cycle continues to be controlled by the MEMO.

For additional information please contact PLI, LLC.

Controlled lubrication with a 4.5VDC, 12VDC or 24VDC External Power Supply

The MEMOLUB® EPS is ideally suited to applications in which machinery is intermittently or infrequently used. It provides the control needed to insure proper lubrication during periods of operation while avoiding the problem of over lubrication.

An external 4.5VDC, 12VDC or 24VDC power source is connected to the 12 inch cable extending from the bottom of the MEMOLUB®. A battery pack is not required. Extension lead wires and connectors are available.

The MEMOLUB® EPS can be mounted directly on the bearing point or remote from the bearing using pipe or flexible tubing. It may also be used as a Multi-Point System lubricating from 2 to 12 lube points. The EPS is available in any of the three MEMOLUB® sizes.

Control of the lubrication injection cycles occurs in one of two ways.

The MEMOLUB® EPS is periodically supplied with DC power by a PLC under program control. Lubrication output cycles of the MEMOLUB® can be based upon hours of machine operation, a count of machine cycles or any other desired criteria.

The MEMOLUB® EPS operates under its own **program control**. A constant 4.5VDC, 12VDC or 24VDC power is supplied during periods of machine operation. The MEMOLUB® program controls the frequency of lubricant output cycles.

Suggested activation configurations:

- A PLC or relay associated with the main power switch of the machine can be used to turn the MEMOLUB® lubricator on and off during machine operation.

  OR

- A manual switch can also be used to turn the MEMOLUB® lubricator on and off during machine operation.

Specifications & Operating Characteristics:

Transformers: (see parts list)
High efficiency
Overload/Over-Voltage protection
Short-Circuit Protection
Output Voltage: 4.5 VDC, 12VDC or 24VDC
Output Current: 2 Amps peak / 1 Amp working
Connectors & Extension Cables are available.

PLC Program Control:
White Timing Ring is used.
Duration of PLC power pulse is 15 seconds
Delay interval between pulses is 60 seconds
Empty Cartridge - PLC program counter

Electrical Wiring:
Brown (+) / White (-)
Wiring length between MEMOLUB® EPS and transformer:
AWG 20 (Cross section 2 x 0.5mm²) - 16 feet (5 meters) or less
AWG 18 (Cross section 2 x 1.0mm²) - 33 feet (10 meters)

MEMOLUB® Output Program:
The MEMOLUB® lubricator volumetric output will be determined by the standard settings in our Installation Instruction sheets. However due to intermittent cycle times, the frequency of output cycles is determined by the customer and therefore the cartridge change out time will need to be calculated or determined by visual inspection.

PLC Powered and Controlled Lubrication

Description

The MEMOLUB® 24V-PLCd model lubricator is especially designed for PLC-controlled machinery (or mobile equipment) where a 24VDC power supply is available. It is ideal for lubricating a wide variety of robots, conveyors, and OEM applications. The MEMOLUB® 24V-PLCd can be direct-mounted for single-point applications, or remote-mounted using pipe or flexible tubing. In addition, lubrication from 2 to 12 lube points is possible with a MEMOLUB® Multi-Point Lubrication System.

The MEMOLUB® 24V-PLCd lubricator has a unique design utilizing a Power-Through Memo which contains the electrical connections needed to power the unit. This gives the user the ability to quickly remove the lubricator for fast lubricant cartridge change-out while avoiding contact with the electrical connections. A 5-foot extension cable on the Power-Through Memo is connected to a PLC-controlled power supply. The PLC program controls the frequency of lubrication output cycles, which may be based upon elapsed clock hours, machine cycles, a count of parts produced, or other desired criteria. Further control is provided by adjusting the volume of lubricant ejected on each cycle. A set of 8 special stroke-limiting washers are supplied with each lubricator. When the Power-Through Memo is used without washers (yielding full piston stroke), the output volume at each stroke is 0.635cc. For each washer (including the "C"-shaped lock washer) inserted into the brass adapter of the Power-Through Memo, the output volume is decreased by 0.04cc per stroke.

(*Note: The lock washer should always be inserted last to hold the others in place.)*

Output per spacer washers:

0 = 0.63cc/stroke	2 = 0.55cc/stroke	4 = 0.47cc/stroke	6 = 0.39cc/stroke	8 = 0.31cc/stroke
1 = 0.59cc/stroke	3 = 0.51cc/stroke	5 = 0.43cc/stroke	7 = 0.35cc/stroke	

The MEMOLUB® 24VDC-PLC is available in three sizes: the Standard (Model 120), the Mega (Model 240), and the Giga (Model 480). Like the HPS model, it is reusable with available replacement lube cartridges. These cartridges are carefully filled at the factory using a precise centrifuging process that eliminates air pockets and contamination. Cartridge change-out normally takes less than 60 seconds! MEMOLUB® is a valuable alternative to time-consuming and costly manual lubrication.

Specifications:

* PLC-controlled lubrication cycles
* 2-wire, 5ft extension cable, Brown(+), Blue(-)
* Input voltage: 24VDC
* Max Amps: .5A
* Single cycle duration: 7.5 seconds
* Minimum time between output cycles: 10 Minutes
* Maximum continuous running time: 30 Seconds
* Polarity Protection

The Power-Through Memo

Lubricator Installation Instructions

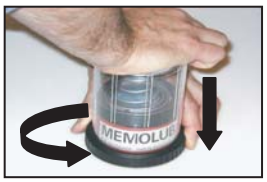
1. Program the volume of lubricant output by inserting the stroke-limiting washers.

2. Install the Power-Through Memo fitting, either direct or remote mounted.

3. Screw the MEMOLUB® 24VDC-PLC on the Power-Through Memo fitting.

4. The MEMOLUB® 24VDC-PLC must be connected to a PLC for its power supply. The PLC determines the frequency of output cycles. ***(PLC Not Included)***

Lubricant Cartridge Change Out Instructions



1. To open, place the lubricator upright on flat surface. Press firmly and turn locking ring counter-clockwise while holding the ribbed surface.

2. Remove the paper, disk-shaped label from the replacement cartridge and fill in the "Start Date" and "Change Date".

3. Carefully squeeze air out of the cartridge until grease begins to emerge from the outlet.

4. Place the cartridge on the inlet of the red housing.

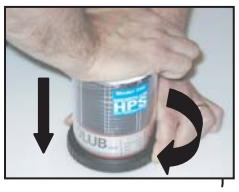
Grease Cartridges Only.

3. Hold the cartridge with the outlet facing up. Carefully remove the cartridge plug. Turn the red housing over and gently place it on the outlet of the cartridge.

4. While holding the cartridge and red housing together, flip the assembly over and hold the cartridge in place.

Oil Cartridges Only.

5. Place the clear housing assembly over the lubricant cartridge and red housing.



6. Holding the locking ring by its ribbed surface, turn it clockwise until it clicks into the locked position.

8. Screw the MEMOLUB® HPS lubricator onto the Power-Through MEMO.

Note: If necessary, prime the MEMOLUB® HPS with a hand grease gun.

Grease cartridges only:

SAFETY PRECAUTIONS

** **Warning:** Lower red housing contains a loaded spring. **Do not open**.*

** Use only factory pre-filled cartridges with MEMOLUB® lubricator.*

MEMOLUB® Lubrication Systems

Which MEMOLUB® Lubrication System to order.

	 HPS	 EPC	 EPS 4.5VDC	 EPS 12VDC	 EPS 24VDC	 24VDC-PLC
Input Power Source	Battery Pack / 4.5VDC	Battery Pack / 4.5VDC	External 4.5VDC or 110VAC (with transformer)	External / 12VDC	External / 24VDC	External / 24VDC
Output Programming Control	MEMO	MEMO	MEMO or PLC	MEMO or PLC	MEMO or PLC	PLC
Lubricator On/Off Control	Manual	External	External	External	External	External
Lubricator Output Settings	52	52	52+	52+	52+	52+
Multi-Point Compatible	Yes	Yes	Yes	Yes	Yes	Yes
Splitter Block Compatible*	Yes	Yes	Yes	Yes	Yes	Yes
Motor Housing Color	Red	Red	Red	Blue	Blue	Yellow
Use with Grease (to NLGI #2)	Yes	Yes	Yes	Yes	Yes	Yes
Use with Oil	Yes	Yes	Yes	Yes	Yes	Yes
Available in all 3 sizes	Yes	Yes	Yes	Yes	Yes	Yes
Output Pressure	350 PSI (25 bar)	350 PSI (25 bar)	350 PSI (25 bar)	350 PSI (25 bar)	350 PSI (25 bar)	350 PSI (25 bar)
Temperature Range **	+5˚F to +120˚F (-15˚C to +50˚C)	+5˚F to +120˚F (-15˚C to +50˚C)	+5˚F to +120˚F (-15˚C to +50˚C)	+5˚F to +120˚F (-15˚C to +50˚C)	+5˚F to +120˚F (-15˚C to +50˚C)	+5˚F to +120˚F (-15˚C to +50˚C)
Remote Installation (single-point)	Up to 40 feet (12 meters)	Up to 40 feet (12 meters)	Up to 40 feet (12 meters)	Up to 40 feet (12 meters)	Up to 40 feet (12 meters)	Up to 40 feet (12 meters)

**** Splitter Blocks cannot be used with oil, and are limited to 7 lubricant output settings.***

***** Lower temperatures can be achieved by using a lowtemp grease and cold-weather battery packs.***

PLI, LLC
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