BIJUR DELIMON®
INTERNATIONAL

Operators Manual

SUREFIRE II

Single Phase PDI - SLR
(24VDC, 115VAC & 230VAC)

36412 r#5

Contents

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Precautions & Symbols

The following symbols, used to identify safety instructions, are defined as follows:	
	Non-compliance will affect safety.
	Electrical safety is involved.
ATTENTION	Safe operation of the lubricator and/ or protection of the lubricator should be considered.
	Electrical connections made to Earth ground.
WARNING	Conditions and actions that pose hazards to the user.
N	Electrical connections made to the neutral conductor are identified with the capital "N"

All safety and/or warning labels affixed to the SureFire II Lubricator must be maintained in a completely legible condition. Also, any modifications made to the Surefire II Lubricator(or to any of its components) must be approved by Bijur Delimon International prior to its use; otherwise the warranty and any liability by Bijur Delimon International will be null and void.

Manufacturer's Statement

The manufacturer and/or distributor has provided the parts list and assembly diagram in this manual as a reference tool only. Neither the manufacturer or distributor makes any representation or warranty of any kind to the buyer that he or she is qualified to make any repairs or replace any parts to the product. In fact, the manufacturer and/or distributor expressly states that all repairs and parts replacements should be undertaken by certified and licensed technicians, and not by the buyer. The buyer assumes all risk and liability arising out of his or her repairs to the original product or replacement parts thereto, or arising out of his or her installation of replacement parts thereto.

General

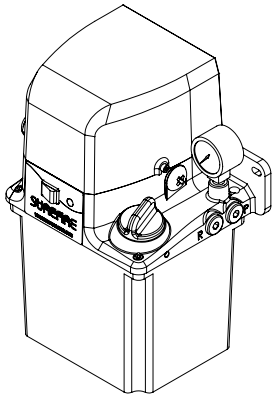
The SureFire II Lubricator is an automatic, robust and durable pump. Its compact size is designed to fit your space requirements and lubrication demands. The SureFire II Lubricator is a self-contained electric motor-driven gear pump that can adapt to a broad range of production machinery. The PDI version can handle oil or fluid grease for single injectors or injector groups serving up to 100 lubrication points. The SLR version uses oil to supply resistance fittings or resistance fittings groups serving up to 100 lubrication points. The SureFire pump's versatility also allows it to perform with other lubrication system types and multiple applications.

Features

+ PDI version handles oil and fluid greases
+ SLR version handles oil
+ Low level switch for fail safe operation
+ Oil outlet connections on either side for easy installations
+ Plastic and metal reservoirs available
+ Convenient terminal strip provides fault-free electrical connections
+ Large capacity fill cap with built-in strainer minimizes contamination
+ All versions are CE approved
+ Two controller versions available, Premium and Lite functionality
+ On/Off Timer version available
+ Terminal strip version available without integral control, for operation via customer PLC, DCS, etc.

PDI Operation

The SureFire II PDI Lubricator has a motor-driven pump that pulls lubricant in from the reservoir and delivers pressurized lubricant to the distribution network through the outlet(s) in the top plate. Pressurizing the distribution network forces all of the positive displacement injectors (PDIs) in the system to fire, discharging the lubricant that was stored in each of their discharge chambers during the last pump cycle.
The pressure in the main line continues to rise activating the pressure switch until relief pressure is reached, at which stage, the relief valve opens and discharges the pressurized lubricant back into the reservoir. When the pump stops, via pressure switch or otherwise, the momentary pressure in the main line becomes greater than the pressure at the outlet side of the gear pump. This pressure differential actuates a quick dump valve which relieves the main line pressure back into the reservoir.



2 Liter Single Phase Standard

SLR Operation

The SureFire II SLR Lubricator has a motor-driven pump that pulls lubricant in from the reservoir and delivers pressurized oil to the distribution network through the outlet(s) in the top plate. Pressurizing the distribution network forces all of the resistance fittings in the system to discharge the oil in proportioned quantities to the friction points. The resistance fittings continue to flow and the pump builds pressure until pressure relief valve setting is reached (75 psi/5 bar). Once the motor is shut off, pressure in the distribution network returns to near 0 psi via a quick dump valve.

Installation & Commissioning ⚠ ⚠

ATTENTION

Install the SureFire II Lubricator in the upright horizontal position ONLY. Mount the lubricator in the desired location and to the desired equipment by means of an appropriately sized bolt through each of the (2) mounting holes in the top plate. (2L & 3L=M6 & 6L=M8)The lubricator should be installed in a location that is easy to access, for purposes of viewing the front panels, for ease of reservoir-filling, for ease of service and for ease of attachment to the distribution network plumbing.
Remember the SureFire II lubricator allows attachment of distribution plumbing to either (or both) sides of the top plate. If only one side is used, be sure to plug the unused outlet with a G1/4 BSPP plug (two plugs are included with each lubricator).
Two electric cable glands are supplied with the lubricator. Use these to secure the electrical wiring for the lubricator and to prevent ingress of fluids or dirt into the motor compartment. Typically one of the fittings is used to bring “power” into the motor compartment and the other fitting is used to bring “signal” into or out of the motor compartment.
All tubing, flexible hoses and fittings must be compatible with the lubricant, operating pressure and surrounding environment. In general, try to install the lubricator in the lowest position (vertically) with relation to the rest of the distribution network and do not allow the tubing to rise and fall when avoiding obstacles. This is in case air enters the distribution lines, the bubbles will tend to rise towards the end of the distribution lines and not get caught anywhere along the way. Any air bubbles trapped in the distribution network plumbing may prevent the PDI injectors from working properly.

Installation & Commissioning Cont'd

ATTENTION

All electrical connections are to be made by a qualified technician and all local electrical codes are to be followed. When electrical connections are being made, do so before the power leads are connected and before the power is supplied. Consult the wiring diagram (located under the motor cover) for the correct wiring for your SureFire II lubricator.

ATTENTION

The installation should include a means of disconnecting the power supply for servicing. Such means shall allow for switching off the power during normal operation and/or in an emergency. Also, a residual current device is required to automatically disconnect the power supply in the event of a failure in basic insulation.

This emergency disconnecting switch shall be located in close proximity to the equipment and be within easy reach. The switch should be marked as the disconnecting device of the equipment, shall have ON/OFF positions clearly identified and should meet the requirements of IEC60947-1 or IEC60947-3.

Be sure that all plumbing distribution lines are clean, are not kinked and are free from any chips or any other impurities.

Lubrication Specifications:

Standard Oil version:
20 to 1500 cSt @ operating temperature
Light Oil version:
5-40 cSt @ operating temperature
Grease version(PDI only):
NLGI grade 000 - 00 (40,000 cSt max)

WARNING

Fill the reservoir through the fill cap and/or fill cap strainer with clean lubricant specified by the Original Equipment Manufacturer and that meets all of the lubricant specifications to the left.

WARNING

Do not overfill the reservoir. Never fill past the "MAX" level as noted on the reservoir. Overfilling could cause damage to the electrical components located under the motor cover.

Pump Priming

Filling the reservoir and turning on the lubricator is usually enough to prime the pump. However, in the case of a very thick lubricant, sometimes it's necessary to assist priming the pump. Upon initial startup, if no lubricant is being delivered to the pump outlet, make sure the pump is primed.

Avoid all kinds of impurities as dirt particles are the most common cause of gear pump failure. If you wish to determine whether
the lubricant you plan on using is approved for use with Bijur Lubricating Systems, you can consult the Customer Service Department.

To prime the distribution network, plumb the entire system (mainline tubing, manifolds, junctions, air/oil blocks, injectors, injector outlet tubing to bearing points, meter units etc.). Then, remove a plug or injector at the point furthest away from the pump. Now, run the pump until bubble-free lubricant flows from this point. Replace the plug or last injector.

Technical Data

Output Volume – 115 VAC, 230 VAC (max.) Single Phase	250cc/min @ 60 Hz 210cc/min @ 50 Hz		
Output Volume – 24 VDC (max.)	250cc/min		
Output Pressure (max.)	**PDI**	450 psi (31 bar)	
	SLR	75 psi (5 bar)	
Pressure Switch Setting[1]	**PDI**	Closes at 290 psi (20 bar)	
	SLR	Closes at 20 psi (1.4 bar)	
Lubricant Viscosity	**Standard Oil version:**	20 to 1500 cSt @ operating temperature	
	Light Oil version:	5-40 cSt @ operating temperature	
Soft Greases[2]	NLGI grade 000 - NLGI grade 00 (40,000 cSt max)		
Reservoir Fill Screen (oil only)	40 mesh, removable		
Reservoir Volume	2 liter 3 liter 6.0 liter 12.0 liter		
Reservoir Material	Luran (Blue Tint) for 2, 3 and 6 liter Steel for 2, 3, 6, & 12.0 liter		
Motor Voltage Options	100/115 VAC 50/60 Hz Single Phase 200/230 VAC 50/60 Hz Single Phase 24 VDC		

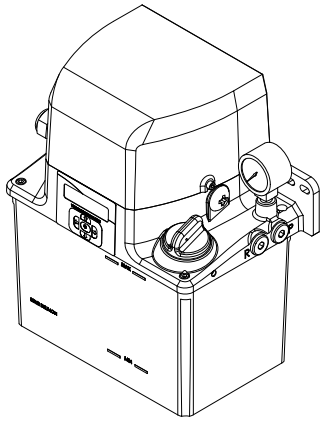
Motor Power Requirements[3]	100-115VAC	200-230VAC	24VDC
Peak Starting Current(amps)	1.2	0.85	4.0
Normal Running Current(amps)	1.0	0.7	3.4
Max Current Locked Rotor(amps)	1.5	1.4	14.2

Operating Temperature Range	40°F through 105°F (5°C through 40°C)
IP Enclosure Rating	IP-54
Electrical Fitting	Liquid tight
Output Connection (x2, one each side)	G 1/4 BSPP
Return Line Connection	G 1/4 BSPP
Single (main) Feed Line	6mm O.D. minimum recommended

[1] *PDI: External end-of-line pressure switch also available (part #26772-2; 225 psi/15.5 bar).*
SLR: Pressure switch is optional for SLR.
External end-of-line pressure switch also available (part #26641-2; 55 psi/3.8 bar).

[2] *PDI version only. Please contact a Bijur Delimon representative for applications using soft grease.*

[3] *Motor Overload Protection needs to be provided by the host machine and/or its control system.*



3 Liter Single Phase w/ Controller

Motor Duty Cycle:

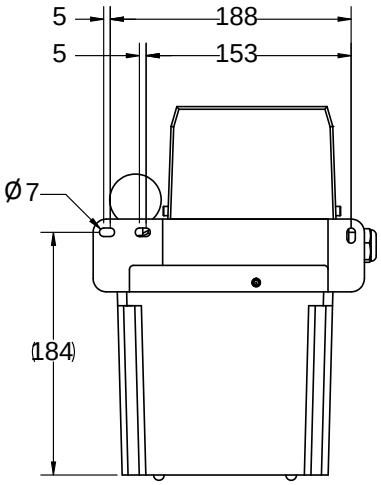
100/115VAC & 200/230VAC motors: S3, 20%, 15 Min.
This means that the maximum continuous "on time" for any cycle is 3 minutes, and if the motor continuous "on time" for a cycle is X, the required minimum "off time" for that same cycle is at least 4X. Each motor has an internal high temperature cutoff switch.
24VDC motor: S1, Continuous Duty

Dimensional Schematics

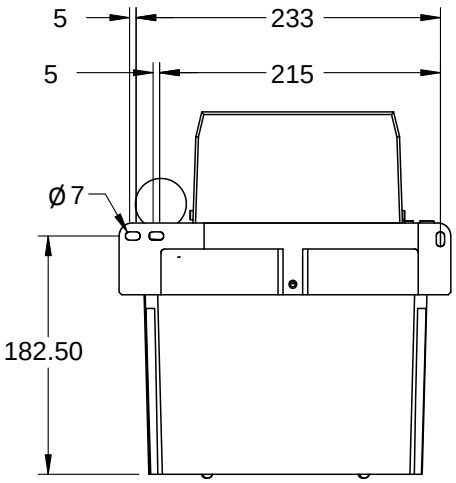
Measurements shown in millimeters.

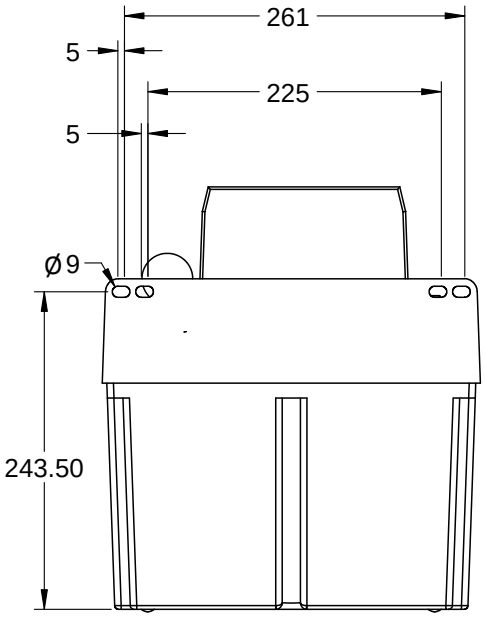
SureFire II 2, 3, 6 & 12 Liter (115 VAC, 230 VAC and 24 VDC Single Phase)

2 Liter

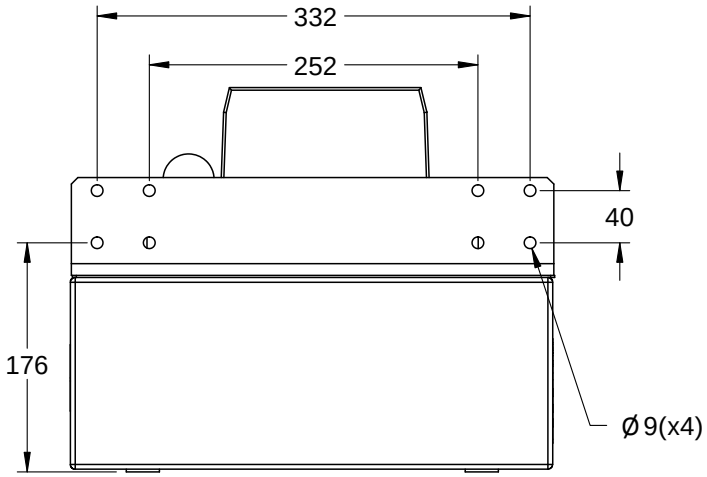


3 Liter





6 Liter



12 Liter

Notes

Surefire II
Terminal Strip Version
Instructions

Terminal Strip Version

How to Use and Wire

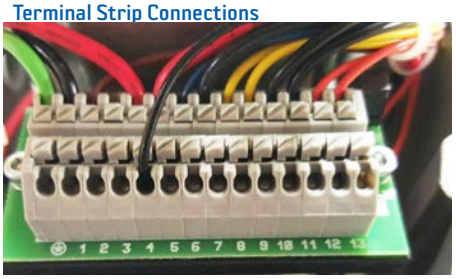
Terminal Strip Versions:

The Surefire II Terminal Strip pump comes with a custom made user friendly terminal strip.

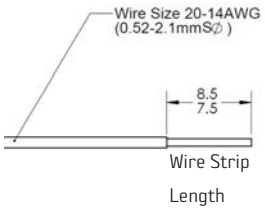
Note: before wiring, check under the motor cover for the wiring pin outs for all the connections.

The wire can be pushed in by simply pushing down on the slot on the connector, push in the wire and release.

Terminal Strip Connections



Wire Strip Illustration



Wire Sizes - Terminal Strip

Terminals	Description	Wire Type	Size	Strip Length
All	All User Terminals (Quick Connection)	Solid Wire / Stranded Wire	20-14 AWG (0.52 – 2.1mm²)	7.5-8.5 mm

Terminal Strip Connections

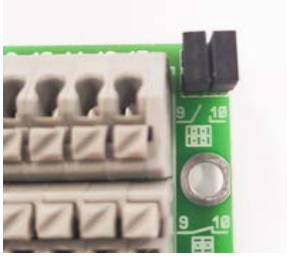
The terminal strip has a built in option to connect pins 9 and 10, this enables a common wire to be used for both the level switch and pressure switch if required. The status of the switch can then be monitored via pins 8 and 11.

If you require to connect pins 9 and 10, Remove the black caps and turn 90 degrees and reinsert the caps.

Connectors 9 & 10 Not Connected

This image shows the position of the connectors when terminals 9 and 10 are not connected. **This is the default position.**

Connectors 9 & 10 Connected



This image shows the position of the connectors when terminals 9 and 10 are connected.

Terminal Strip Wire Connections

1. Strip the wire to the correct length.
2. Push down on the tab, using straight, slotted screwdriver as shown.
3. Insert the wire, fully release the tab.
4. Pull the wire to ensure it is inserted correctly.

Surefire II
Timer Controller
Instructions

Timer Controller Instructions

Modes and Faults

W1 - Timer Mode:

The Timer has one program mode, W1.

Description:

The Surefire II Controller Timer is an ideal controller for a system which requires the motor cycle to be 'ON' and 'OFF'. The controller automatically controls the time the lubricator is ON and OFF for.

The cycle times can be changed by increasing / decreasing the 'T1' ON time or 'T2' OFF time values (for 115VAC or 230VAC the motor has to run within the S3 duty cycle).

The Level switch is connected to an input on the controller which allows the controller to monitor the oil level in the reservoir once the power is switched on.

Note: A pressure Switch can be fitted to the pump but **cannot** be integrated into a timer controller, (if pressure switch monitoring is required a Lite or Premium Controller must be selected).

Manual Override:

- In Run Mode -To enable a new cycle at any time, press the down arrow ↓
- In Run Mode -To pause the controller/pump at any time, press the up arrow, (maximum pause time is 5 minutes) ↑.

Fault Alarms:

The following are the faults in timer mode:

F1: Low Level Fault.

F2: Warning Level Fault, (only available if a two position level switch is selected).

If a 'F1' fault occur the K1 relay will change state as per page 14

If a 'F2' fault occur the K2 relay will change state as per page 14

Note: K1 relay will stop all operations in the pump

K2 relay will **NOT** stop the pump from operating (F2 will flash on the screen)

To reset the Fault press the ✱ Key

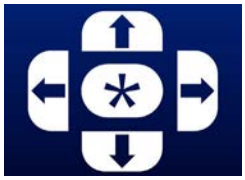
Power Off Options:

If the input power to the controller is interrupted unexpectedly, there are two options available to select (B1 or B2) this selection will determine the preferred operation of the controller when the power is restored.

B1: Begin a new cycle when power is restored.

B2: Remember where the controller was in the cycle and restart from this position.

Key Descriptions:



-IN RUN MODE-

↑ Pause

↓ Begin a New Cycle

✱ Resume after Pause

-IN EDIT MODE-

↑ Increase the Time

↓ Decrease the Time

← Move the Cursor Left

→ Move the Cursor Right

✱ Save & Return to Run Screen

FAULT CODES:

F1:
Low level fault.

F2:
Warning level fault
(Only with two position switch)

Motor Duty Cycle:

100/115VAC & 200/230VAC motors: S3, 20%, 15 Min.
This means that the maximum continuous "on time" for any cycle is 3 minutes, and if the motor continuous "on time" for a cycle is X, the required minimum "off time" for that same cycle is at least 4X. Each motor has an internal high temperature cutoff switch.
24VDC motor: S1, Continuous Duty

Timer Controller Instructions

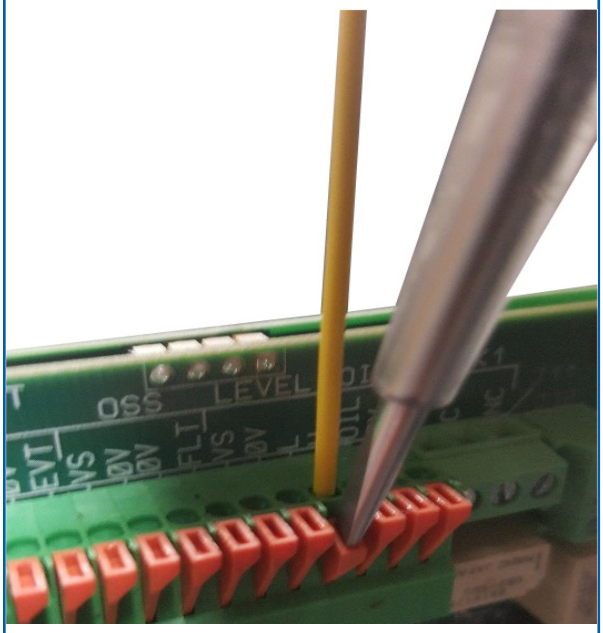
Wiring

Wire Sizes

Controller/Lite Controller/Timer

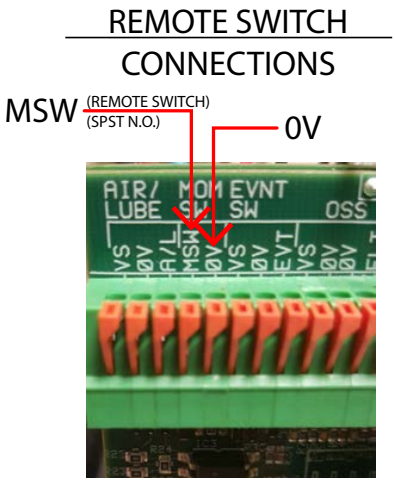
Terminals	Description	Wire Type	Size	Strip Length
J1 & J2	Power Input (Quick Connection)	Solid Wire / Stranded Wire	24-14 AWG (0.2 – 2.08mm²)	9-10 mm
J11 & J12	Fault Contact (Screw Connection)	Solid Wire / Stranded Wire	24-16 AWG (0.2 – 1.5mm²)	5-6 mm
J10	All other inputs (Quick Connection)	Solid Wire / Stranded Wire	26-20 AWG (0.13 – 0.52mm²)	9-10 mm

Timer Terminal Strip Wire Connections



1. Strip the wire to the correct length.
2. Push down on the orange tab, using a slotted screwdriver.
3. Insert the wire fully, release the orange tab.
4. Pull the wire to ensure it is inserted correctly.

Run Mode - Remote Momentary Switch



J10 14 (0V) & 15 (MSW)

ATTENTION: Remote Momentary Switch Facility

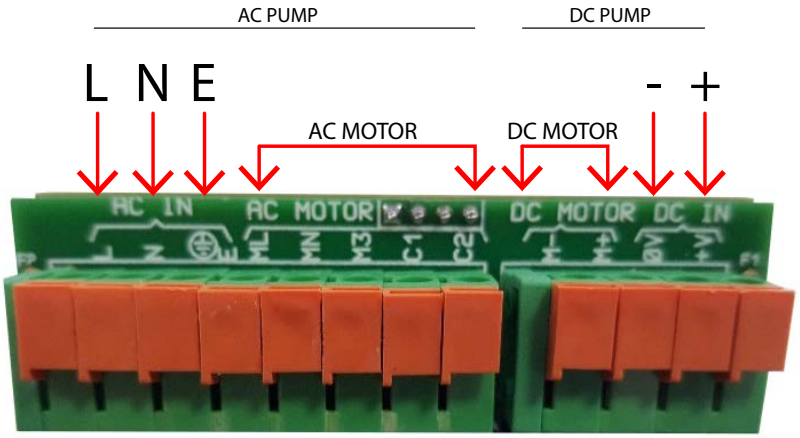
Fitting a remote momentary switch to J10 terminals 14 & 15, the controller will respond identical to pressing the DOWN arrow key pad. In RUN mode, if it sees this input, it will begin a new cycle beginning with the Time On setting(T1).
(This input is not enabled when in PROGRAM mode)

Timer Controller Instructions

Wiring

Electrical Connections

Terminal Strip Power Connections



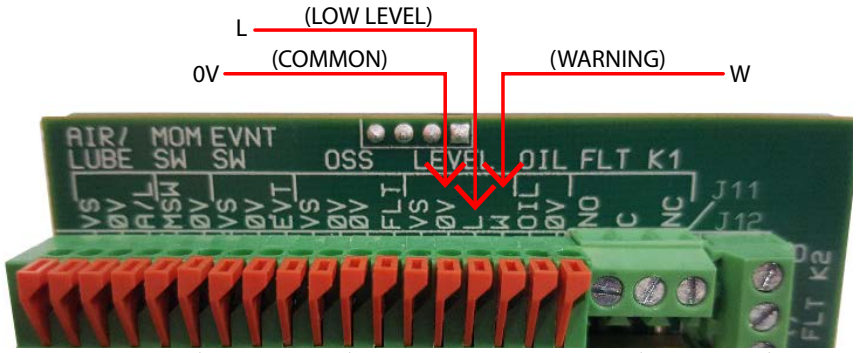
Wiring The Timer Controller:

All wiring diagrams are available underneath the motor cover.

AC Motor (Power Input – 'AC IN')
L= +115 VAC or +230 VAC (Live)
N = 0V (Neutral)
E = Ground (Earth)

DC Motor (Power Input –'DC IN')
+V = +24VDC
0V = 0V

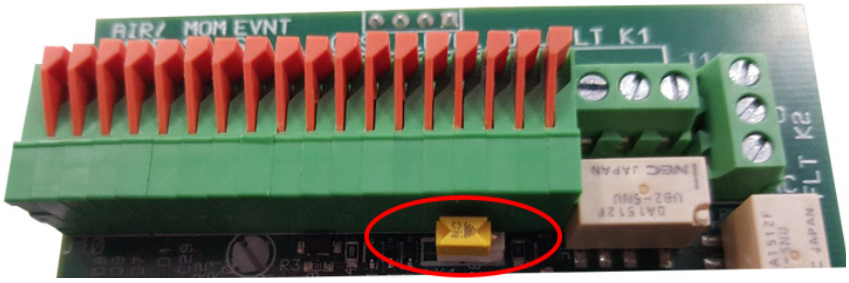
Terminal Strip Level Switch Connections



Level Switch (single position)
Level 'L' and '0V'

Level Switch (Two Position)
Level 'W', 'L' and 0V

Note: If a two position level switch is fitted ensure the yellow switch is as shown below (pushed to the left side):



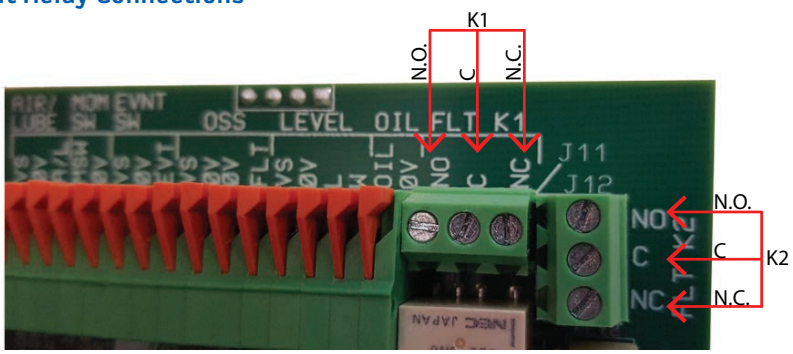
ATTENTION:

The only input available with the Timer Controller is the level switch. All other inputs are available with either lite controller or the Premium controller.

Timer Controller Instructions

Fault Relays & Fuses

Fault Relay Connections

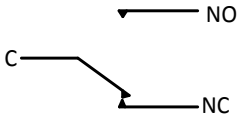
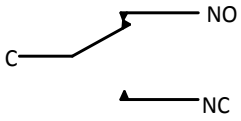
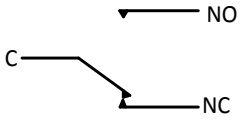


Relay Specifications

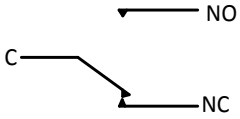
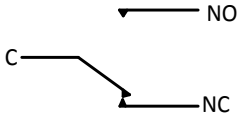
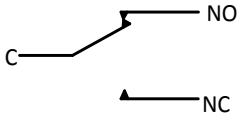
Contact Rating / Max. Switching Power	30W / 37.5VA
Max. Switching Voltage (Term.Strip/DIN)	250 VAC 220 VDC
Max. Switching Voltage (Via M12 Connector)	50 VAC 50 VDC
Max. Switching Current	1 A
Max. Carrying Current	1 A

Fault Relay States:

Fault Relay K1 - NO (Normally Open), C (Common) and NC (Normally Closed)

		
De-Energized/Power Off	Power On State	Fault State

Fault Relay K2 (Only used for a warning if the reservoir level is approaching low)

		
De-Energized/Power Off	Power On State	Fault State

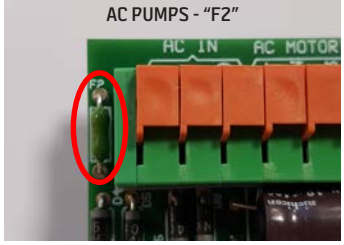
NOTE:

On 'Power ON' the K1 relay will Switch as shown to the left, this enables power monitoring from an external resource if required.

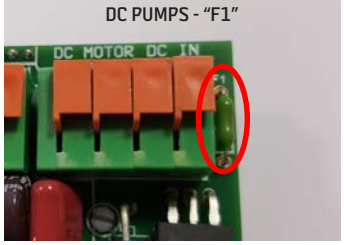
Timer Control Board Protection

The controller board is fitted with an on board 5 amp fuse. **Fuse P.N. 71110.**

AC PUMPS - "F2"



DC PUMPS - "F1"



NOTES ON REPLACING FUSE:

Remove the fuse using a miniature pliers and fit the new fuse,

Ensure the fuse is pushed in correctly.

Timer Controller Instructions

Programming

Programming the Controller W1 Mode

Run Screen Parameters:

T1 = Pump On Time (Hours: Minutes: Seconds)

T2= Pump Off Time (Hours: Minutes: Seconds)

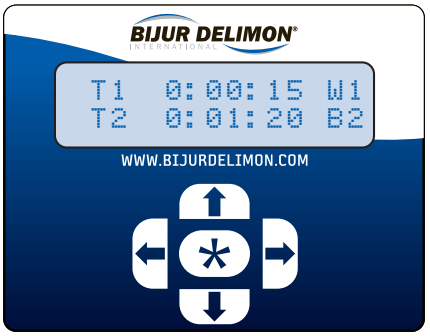
W1= Timer Mode

B2= Power Off Options, See page 11

MAX TIME SETTINGS:

T1 ON-TIME
AC: 0 HRS / 2 MIN / 59 SEC
DC: 24 HRS / 59 MIN / 59 SEC

T2 OFF-TIME
AC: MINIMUM 4 X "T1" (S3 DUTY CYCLE)
DC: 24 HRS / 59 MIN / 59 SEC



THE RUN SCREEN

Once the controller is powered up and the reservoir is filled above the Min Level, the controller will start-up with the 'BIJUR DELIMON' screen. After 3 seconds the 'RUN SCREEN' will appear.

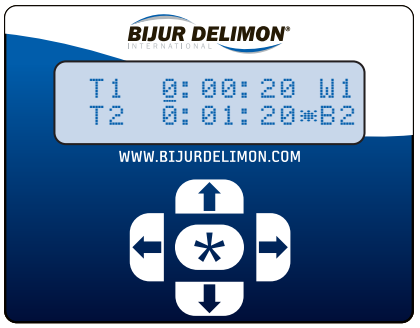
Edits:

To edit the program, press the left key ⬅ and right key ➡ simultaneously.

Once in Edit Mode the cursor will appear on the T1 HR (hour) value. It can be moved across and down by pressing the Left Arrow key ⬅ or the right arrow key ➡ . To change any of the values press the UP arrow ⬆ or DOWN arrow ⬇ on that particular field.

To save the settings and exit the edit screen press the ✱ key.

The controller will return to the run screen, and begin a new lube cycle.

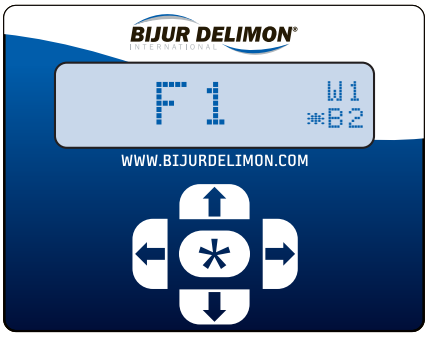


THE EDIT SCREEN

Faults:

If a fault occurs, the fault will appear as per the fault screen.

Press ✱ key to reset the fault. Once the fault has been corrected, the controller will begin a new lube cycle.



THE FAULT SCREEN

Surefire II
Lite Controller
Instructions

Lite Controller

Modes and Faults

The Lite Controller version has three program modes, W1, W2 & W3.

W1 - Timer Mode:

See Timer section

W2 - Oil Pressure Switch Mode:

Description:

Motor will run until pressure switch signal is received, and will continue to run for a pre-set length of time T1 (motor hold time) after this, and then turn off for a period of time T2 (motor off time). This cycle is repeated indefinitely. If the pressure switch signal is not received within a period of time T3 (time to wait for pressure switch), then a pressure switch fault is indicated.

-The pressure switch is energized after 20 Bar (290 PSI) for PDI, 1.4 Bar(20 PSI) for SLR.

-The motor-on time is not defined by one variable. It equates to T1 + Time to receive the pressure switch signal (which can vary depending on many factors).

-If the supply voltage is AC, the T1 & T2 times must comply the S3 duty cycle.

-W2 mode is ideal to be used with PDI's (Positive Displacement Injectors).

Manual Override:

- In Run Mode -To enable a new cycle at any time, press the down arrow ↓
- In Run Mode -To pause the controller/pump at any time, press the up arrow, (maximum pause time is 5 minutes) ↑.

Fault Alarms:

The following are the faults in Lite Controller mode:

F1: Low Level Fault.
F2: Warning Level Fault, (only available if a two position level switch is selected).
F3: Pressure Switch closed at the start of the cycle
F4: Pressure Switch opens during the T1 on time and pressure drops below the Pressure Switch set point.
F5: Pressure Switch set point is not reached with in the pre-set T3 time frame

If a F1, F3, F4 or F5 fault occur the K1 relay will change state as per page 20
If a F2 fault occur the K2 relay will change state as per page 20

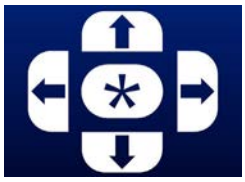
Note: K1 relay will stop all operations in the pump
K2 relay will **NOT** stop the pump from operating (F2 will flash on the screen)
To reset the Fault press the * Key

Power Off Options:

If the input power to the controller is interrupted unexpectedly, there are two options available to select (B1 or B2) this selection will determine the preferred operation of the controller when the power is restored.

B1: Begin a new cycle when power is restored.
B2: Power down during T1 cycle, begin a new cycle when power is restored.
Power down during T2 Cycle, remember where the controller was in the cycle and restart from this time.

Key Descriptions:



-IN RUN MODE-

↑ Pause
↓ Begin a New Cycle
→ View T3 Display Screen
* Resume after Pause

-IN EDIT MODE-

↑ Increase the Time
↓ Decrease the Time
← Move the Cursor Left
→ Move the Cursor Right
* Save & Return to Run Screen

FAULT CODES:

F1:
Low level fault.

F2:
Warning level fault
(Only with two position switch)

F3:
Pressure switch closed at the start of the cycle

F4:
Pressure switch opens during the T1 on time and pressure drops below the pressure switch set point

F5:
Pressure Switch set point is not reached with in the pre-set T3 time frame

Lite Controller Instructions

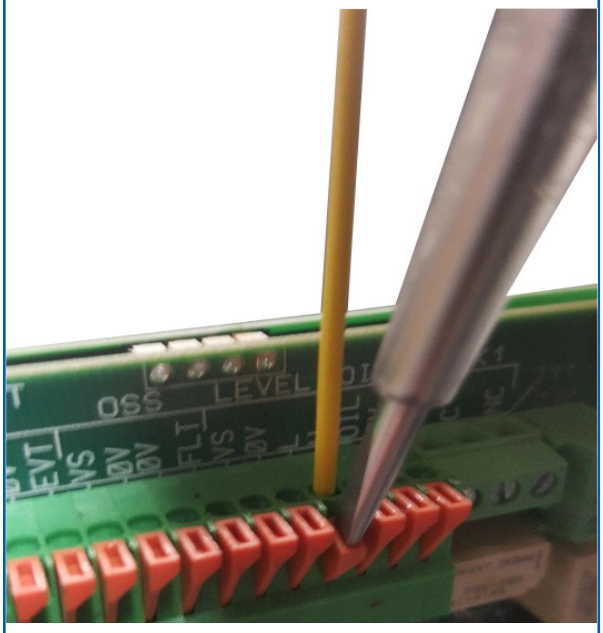
Wiring

Wire Sizes

Controller/Lite Controller/Timer

Terminals	Description	Wire Type	Size	Strip Length
J1 & J2	Power Input (Quick Connection)	Solid Wire / Stranded Wire	24-14 AWG (0.2 – 2.08mm²)	9-10 mm
J11 & J12	Fault Contact (Screw Connection)	Solid Wire / Stranded Wire	24-16 AWG (0.2 – 1.5mm²)	5-6 mm
J10	All other inputs (Quick Connection)	Solid Wire / Stranded Wire	26-20 AWG (0.13 – 0.52mm²)	9-10 mm

Timer Terminal Strip Wire Connections



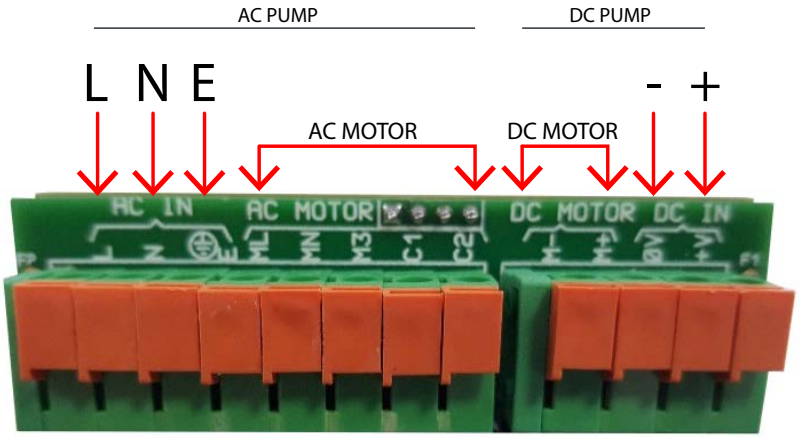
1. Strip the wire to the correct length.
2. Push down on the orange tab, using a slotted screwdriver.
3. Insert the wire fully, release the orange tab.
4. Pull the wire to ensure it is inserted correctly.

Lite Controller Instructions

Wiring

Electrical Connections

Terminal Strip Power Connections



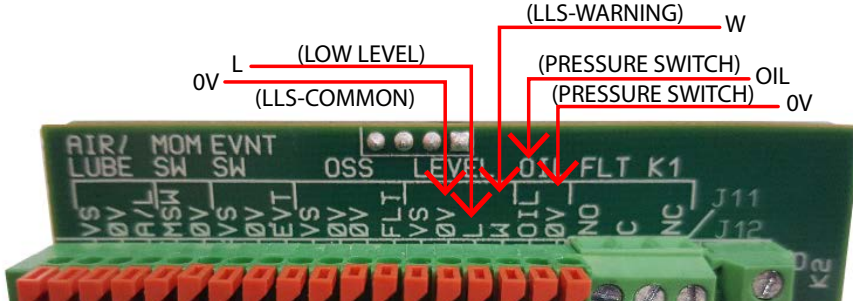
Wiring The Timer Controller:

All wiring diagrams are available underneath the motor cover.

AC Motor (Power Input – 'AC IN')
L= +115 VAC or +230 VAC (Live)
N = 0V (Neutral)
E = Ground (Earth)

DC Motor (Power Input –'DC IN')
+V = +24VDC
0V = 0V

Terminal Strip Level Switch & Pressure Switch Connections

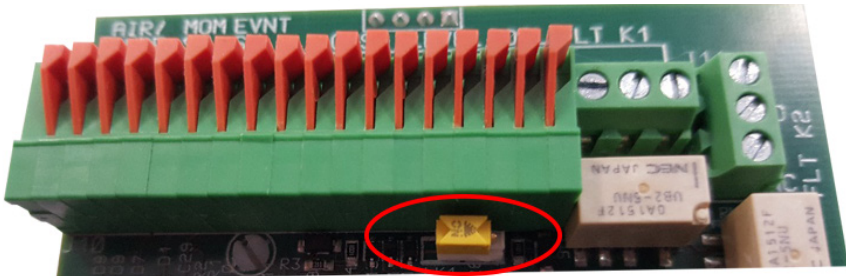


Level Switch (single position) 'L' and '0V'

Level Switch (Two Position) 'W', 'L' and 0V

Oil Pressure Switch 'OIL' and '0V'

Note: If a two position level switch is fitted ensure the yellow switch is as shown below (pushed to the left side):



Motor Duty Cycle:

100/115VAC & 200/230VAC motors: S3, 20%, 15 Min.
This means that the maximum continuous "on time" for any cycle is 3 minutes, and if the motor continuous "on time" for a cycle is X, the required minimum "off time" for that same cycle is at least 4X. Each motor has an internal high temperature cutoff switch.
24VDC motor: S1, Continuous Duty

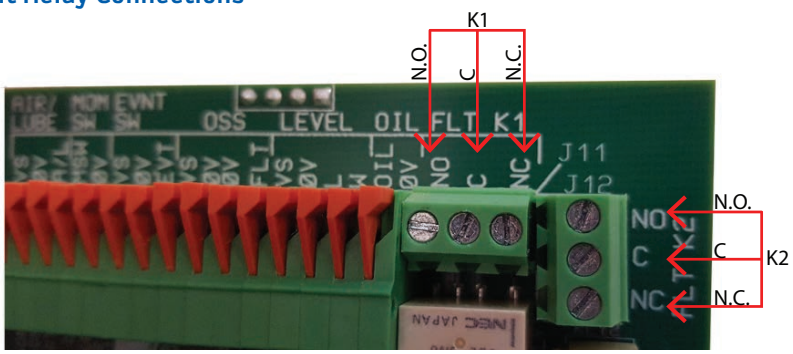
ATTENTION:

The inputs available with the Lite Controller W2 Mode is the level switch and pressure switch. All other inputs are available with the Premium Controller.

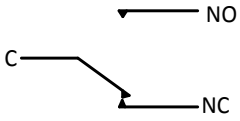
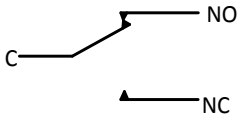
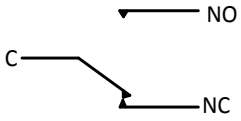
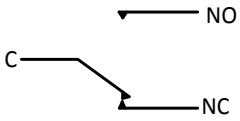
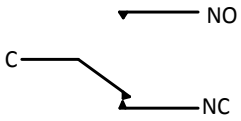
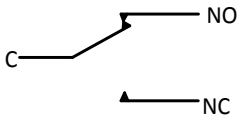
Lite Controller Instructions

Fault Relays & Fuses

Fault Relay Connections



Fault Relay States:

Fault Relay K1 - NO (Normally Open), C (Common) and NC (Normally Closed)		
		
De-Energized/Power Off	Power On State	Fault State
Fault Relay K2 (Only used for a warning if the reservoir level is approaching low)		
		
De-Energized/Power Off	Power On State	Fault State

Relay Specifications

Contact Rating / Max. Switching Power	30W / 37.5VA
Max. Switching Voltage (Term.Strip/DIN)	250 VAC 220 VDC
Max. Switching Voltage (Via M12 Connector)	50 VAC 50 VDC
Max. Switching Current	1 A
Max. Carrying Current	1 A

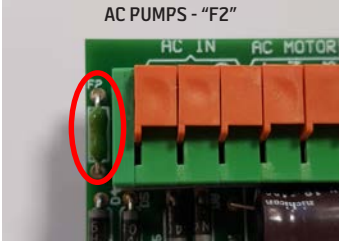
NOTE:

On 'Power ON' the K1 relay will Switch as shown to the left, this enables power monitoring from an external resource if required.

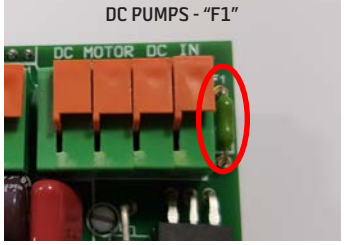
Timer Control Board Protection

The controller board is fitted with an on board 5 amp fuse. **Fuse P.N. 71110.**

AC PUMPS - "F2"



DC PUMPS - "F1"



NOTES ON REPLACING FUSE:

Remove the fuse using a miniature pliers and fit the new fuse,

Ensure the fuse is pushed in correctly.

Lite Controller Instructions

Programming

Programming the Controller W2 Mode

Run Screen Parameters:

T1 = Pump Hold Time (Hours: Minutes: Seconds)

T2= Pump Off Time (Hours: Minutes: Seconds)

T3= Pump On Monitoring Time, time to wait to receive pressure switch signal (Seconds)

W2= Oil Pressure Switch Mode

B1/B2= See Power Off Options, page 17

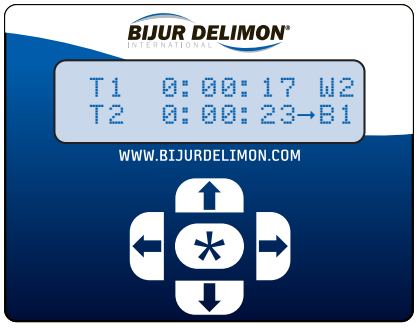
MAX TIME SETTINGS:

T1 ON-TIME
AC: 0 HRS / 2 MIN / 59 SEC
DC: 24 HRS / 59 MIN / 59 SEC

T2 OFF-TIME
AC: MINIMUM 4 X "T1" (S3 DUTY CYCLE)
DC: 24 HRS / 59 MIN / 59 SEC

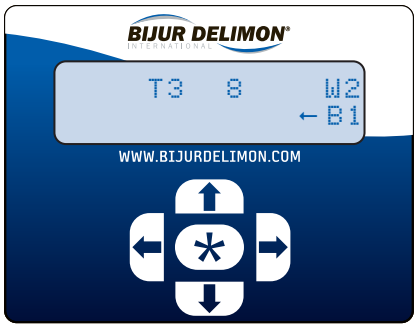
T3: PUMP ON MONITORING TIME: 99 SEC

Once the controller is powered up and the reservoir is filled above the Min Level, the controller will start-up with the 'BIJUR DELIMON' screen. After 3 seconds the 'RUN SCREEN' will appear.



THE RUN SCREEN

To view the 'T3' display screen press the Right-Hand Key



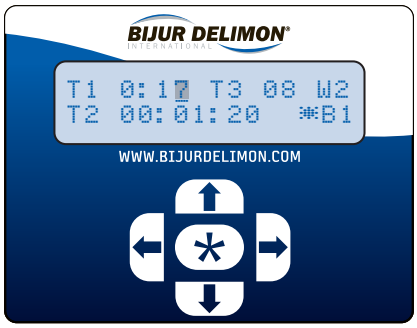
THE T3 DISPLAY SCREEN

Edits:

To edit the program, press the left key and right key simultaneously.

Once in Edit Mode the cursor will appear on the T1 HR (hour) value. To move across and down press the Left Arrow key or the right arrow key . To change any of the values press the UP arrow or DOWN arrow on that particular field.

To save the settings and exit the edit screen press the Key.



THE EDIT SCREEN

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Lite Controller Instructions

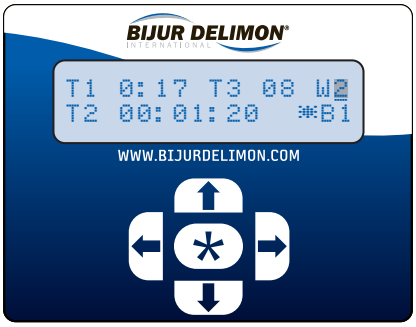
Programming

Programming the Controller W2 Mode

To change the controller mode, move the cursor over the "W_" field and change the mode to the required setting by pressing the up arrow ⬆ and down arrow ⬇ .
The W_ field can be changed to the following modes:
W1 =Timer Mode
W2 = Pressure Switch Mode
W3 = Event Switch Mode

To save the settings and exit the edit screen press the ✱ key.

The controller will return to the run screen, and begin a new lube cycle.

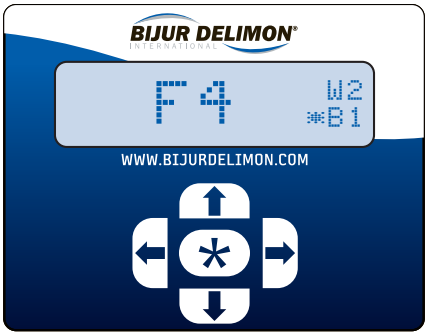


THE EDIT SCREEN MODES

Faults:

If a fault occurs, the fault will appear as per the fault screen.

Press ✱ key to reset the fault. Once the fault has been corrected, the controller will begin a new lube cycle.



THE FAULT SCREEN

Lite Controller

Modes and Faults

W3 - Cycle Switch Mode:

Description:

Motor will run for a pre-set number of cycles (C1 = number of Cycles), once completed it will then turn off for a period of time T2.

The cycle is repeated indefinitely. If the time between consecutive cycles (or time from motor on to first cycle) exceeds a pre-set time T4, then a cycle fault is indicated.

If the supply voltage is AC, the C1, T2 and T4 times must comply with the motor S3 duty cycle.

Manual Override:

- In Run Mode -To enable a new cycle at any time, press the down arrow
- In Run Mode -To pause the controller/pump at any time, press the up arrow, (maximum pause time is 5 minutes) .

Fault Alarms:

The following are the faults in timer mode:

F1: Low Level Fault.
F2: Warning Level Fault, (only available if a two position level switch is selected).
F6: Lube cycle switch watchdog expired

If a F1 or F6 fault occur the K1 relay will change state as per page 20
If a F2 fault occur the K2 relay will change state as per page 20

Note: K1 relay will stop all operations in the pump
K2 relay will **NOT** stop the pump from operating (F2 will flash on the screen)
To reset the Fault press the * Key

Power Off Options:

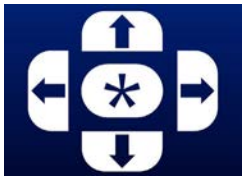
If the input power to the controller is interrupted unexpectedly, there are two options available to select (B1 or B2) this selection will determine the preferred operation of the controller when the power is restored.

B1: Begin a new cycle when power is restored.

B2: Power down during C1 cycle, begin at the cycle where it was powered down.

Power down during T2 Cycle, remember where the controller was in the cycle and restart from this time.

Key Descriptions:



-IN RUN MODE-

- Pause
- Begin a New Cycle
- View T3 Display Screen
- * Resume after Pause

-IN EDIT MODE-

- Increase the Time
- Decrease the Time
- Move the Cursor Left
- Move the Cursor Right
- * Save & Return to Run Screen

FAULT CODES:

F1:
Low level fault.

F2:
Warning level fault
(Only with two position switch)

F6:
Lube cycle switch watchdog expired

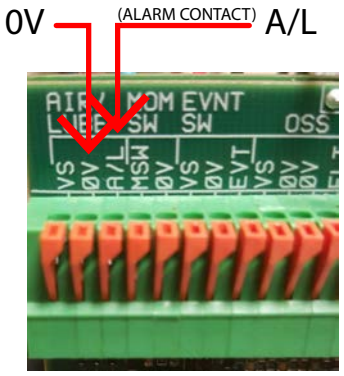
Lite Controller Instructions

Wiring

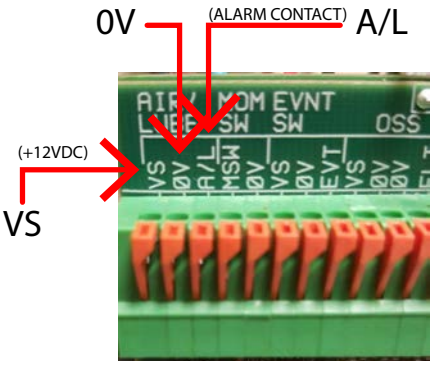
Electrical Connections

Terminal Strip Switch Connections

CYCLE SWITCH
DRY CONTACT

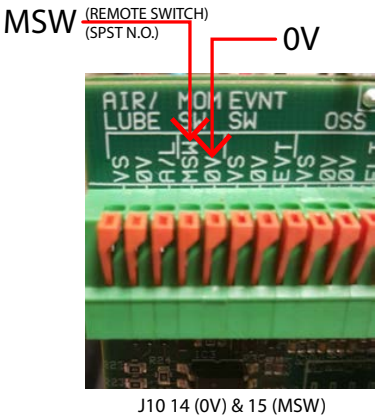


NPN / PNP
SWITCH CONNECT



Run Mode - Remote Momentary Switch

REMOTE SWITCH
CONNECTIONS



J10 14 (0V) & 15 (MSW)

ATTENTION: Remote Momentary Switch Facility

Fitting a remote momentary switch to J10 terminals 14 & 15, the controller will respond identical to pressing the DOWN arrow key pad. In RUN mode, if it sees this input, it will begin a new cycle beginning with the Time On setting(T1). (This input is not enabled when in PROGRAM mode)

Fault Relays - See page 20

Lite Controller Instructions

Programming

Programming the Controller W3 Mode

Run Screen Parameters:

C1 = Number of Counts

T4= Maximum Time Allowed Between Counts (Seconds)

T2= Pump Off Time

W3= Cycle Switch Mode

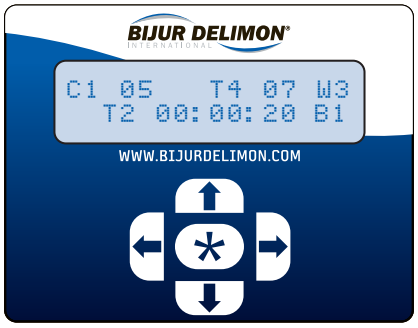
B1/B2= See Power Off Options, page 23

MAX SETTINGS:

C1 COUNTS
MAXIMUM 99 COUNTS

T4 TIME BETWEEN COUNTS
MAXIMUM 99 SECONDS

T2 OFF-TIME
AC: MINIMUM 4 X "T1" (S3 DUTY CYCLE)
DC: 24 HRS / 59 MIN / 59 SEC

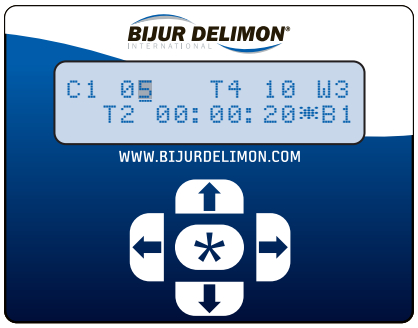


THE RUN SCREEN

Once the controller is powered up and the reservoir is filled above the Min Level, the controller will start-up with the 'BIJUR DELIMON' screen. After 3 seconds the 'RUN SCREEN' will appear.

Edits:

To edit the program, press the left key ⬅ and right key ➡ simultaneously.



THE EDIT SCREEN

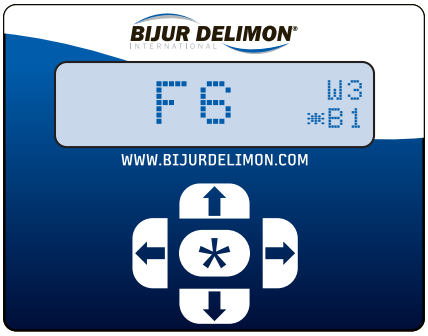
Once in Edit Mode the cursor will appear on the C1 (# of counts) value. It can be moved across and down by pressing the left arrow key ⬅ or the right arrow key ➡. To change any of the values press the up arrow ⬆ or down arrow ⬇ on that particular field.

To save the settings and exit the edit screen press the * key.

Faults:

If a fault occurs, the fault will appear as per the fault screen.

Press * key to reset the fault. Once the fault has been corrected, the controller will begin a new lube cycle.



THE FAULT SCREEN

Surefire II
Premium Controller
Instructions

Premium Controller

Modes

The Premium Controller version has four program modes, W1, W2, W3 & W4.

W1 - Timer Mode:

See Timer section

W2 - Pressure Switch Mode & W3 - Cycle Switch Mode

See Lite Controller section

With the Premium controller it is simple to choose the option that you require by selecting the W1, W2, W3 or W4 mode in the controller program.

W4 - Controller Mode:

There are two main options within W4 Mode.
- Controller Mode (Event Switch Disabled)
- Controller Mode (Event Switch Enabled)

Description - Controller Mode:

W4 mode is essentially an extension of the W2 pressure switch mode with the following additional features:

1. Enable / Disable Oil Pressure Switch.
2. Enable / Disable / Configure Air Pressure Switch.
3. Enable / Disable / Configure pre-lube.
4. Enable / Disable / Configure Event Mode.
5. Enable / Disable Oil Streak Sensor Input.

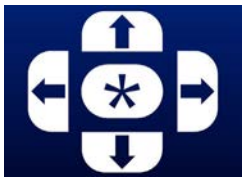
Controller mode W4 is the ideal selection for Air-Oil Systems, all the functionality that is required for an Air-Oil system is built into the Premium Controller.

Manual Override:

- In Run Mode -To enable a new cycle at any time, press the down arrow ↓
- In Run Mode -To pause the controller/pump at any time, press the up arrow ↑, (maximum pause time is 5 minutes) .

To cancel a Pre-Lube and process directly to run mode press the ← .

Key Descriptions:



-IN RUN MODE-

↑ Pause

↓ Begin a New Cycle

→ View T3 Display Screen

* Resume after Pause

-IN EDIT MODE-

↑ Increase the Time

↓ Decrease the Time

← Move the Cursor Left

→ Move the Cursor Right

* Save & Return to Run Screen

Premium Controller

Faults

Fault Alarms:

The following are the faults in Premium Controller Mode:

F1: Low Level Fault.
F2: Warning Level Fault, (only available if a two position level switch is selected).
F3: Pressure Switch closed at the start of the cycle.
F4: Pressure Switch opens during the T1 on time and pressure drops below the Pressure Switch set point.
F5: Pressure Switch set point is not reached with in the pre-set T3 time frame.
F7: Even Watchdog Timer expired.
F8: Air Pressure Switch.
F9: Oil Streak Sensor.

If a F1, F3, F4, F5, F7, F8 or F9 fault occur the K1 relay will change state as per page 32
If a F2 fault occur the K2 relay will change state as per page 32

Note: K1 relay will stop all operations in the pump
K2 relay will **NOT** stop the pump from operating (F2 will flash on the screen)
To reset the Fault press the Select Key

FAULT CODES:

F1:
Low level fault.

F2:
Warning level fault
(Only with two position switch)

F3:
Pressure switch closed at the start of the cycle

F4:
Pressure switch opens during the T1 on time and pressure drops below the pressure switch set point

F5:
Pressure Switch set point is not reached with in the pre-set T3 time frame

F7:
Event Watchdog Timer expired.

F8:
Air Pressure Switch fault.

F9:
Oil Streak Sensor

Power Off Options (Event Mode Not Enabled):

If the input power to the controller is interrupted unexpectedly, there are two options available to select (B1 or B2) this selection will determine the preferred operation of the controller when the power is restored.

B1: Begin a new cycle when power is restored.
B2: Power down during T1 cycle, begin a new cycle when power is restored.
Power down during T2 Cycle, remember where the controller was in the cycle and restart from this time.

Power Off Options (Event Mode Enabled):

If the input power to the controller is interrupted unexpectedly, there are two options available to select (B1 or B2) this selection will determine the preferred operation of the controller when the power is restored.

B1: Begin a new cycle when power is restored.
B2: Power down during C1 – restart at the count value that power was lost at.
Power down during T1 - begin a new cycle when power is restored

Motor Duty Cycle:

100/115VAC & 200/230VAC motors: S3, 20%, 15 Min.
This means that the maximum continuous "on time" for any cycle is 3 minutes, and if the motor continuous "on time" for a cycle is X, the required minimum "off time" for that same cycle is at least 4X. Each motor has an internal high temperature cutoff switch.
24VDC motor: S1, Continuous Duty

Premium Controller

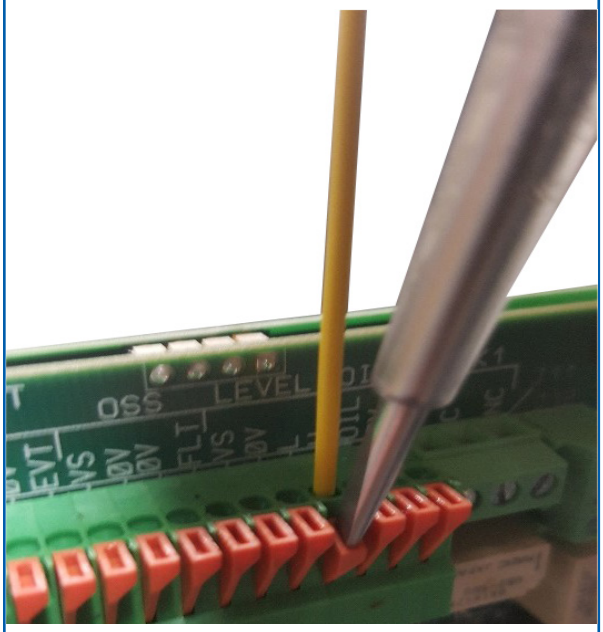
Wiring

Wire Sizes

Controller/Lite Controller/Timer

Terminals	Description	Wire Type	Size	Strip Length
J1 & J2	Power Input (Quick Connection)	Solid Wire / Stranded Wire	24-14 AWG (0.2 – 2.08mm²)	9-10 mm
J11 & J12	Fault Contact (Screw Connection)	Solid Wire / Stranded Wire	24-16 AWG (0.2 – 1.5mm²)	5-6 mm
J10	All other inputs (Quick Connection)	Solid Wire / Stranded Wire	26-20 AWG (0.13 – 0.52mm²)	9-10 mm

Timer Terminal Strip Wire Connections



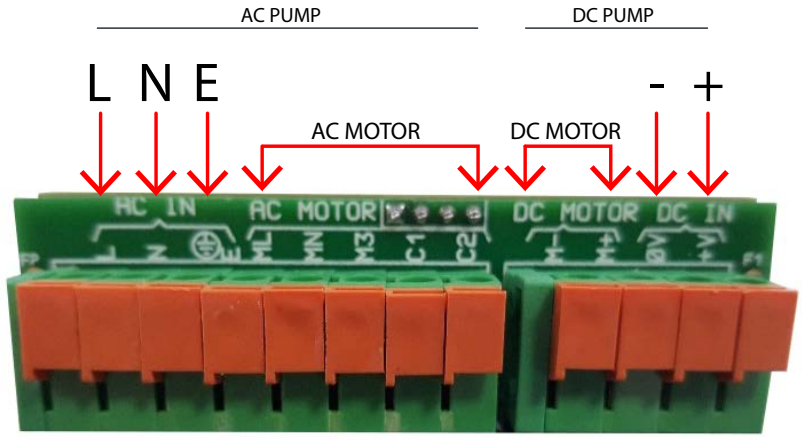
1. Strip the wire to the correct length.
2. Push down on the orange tab, using a slotted screwdriver.
3. Insert the wire fully, release the orange tab.
4. Pull the wire to ensure it is inserted correctly.

Premium Controller

Wiring

Electrical Connections

Terminal Strip Power Connections



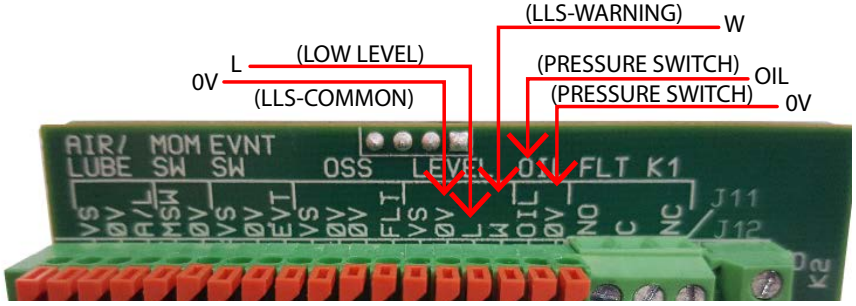
Wiring The Timer Controller:

All wiring diagrams are available underneath the motor cover.

AC Motor (Power Input – 'AC IN')
L= +115 VAC or +230 VAC (Live)
N = 0V (Neutral)
E = Ground (Earth)

DC Motor (Power Input –'DC IN')
+V = +24VDC
0V = 0V

Terminal Strip Level Switch & Pressure Switch Connections

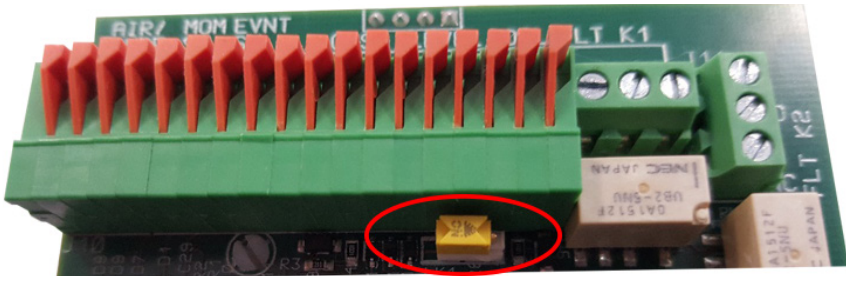


Level Switch (single position)
'L' and '0V'

Level Switch (Two Position)
'W', 'L' and 0V

Oil Pressure Switch
'OIL' and '0V'

Note: If a two position level switch is fitted ensure the yellow switch is as shown below (pushed to the left side):



ATTENTION:

The inputs available with the Premium Controller W4 Mode is the level switch, pressure switch, air pressure switch and Oil Streak Sensors.

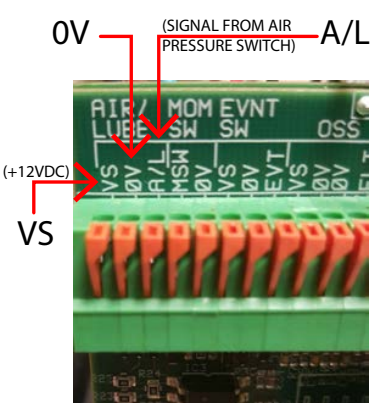
Premium Controller

Wiring

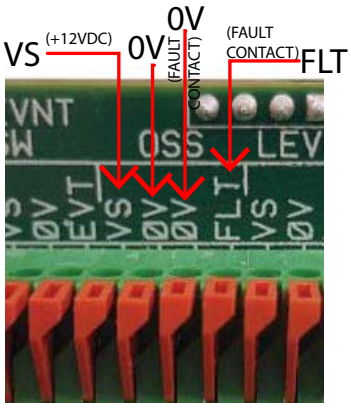
Terminal Strip Switch Connections

Controller Mode - Air Pressure Switch & Oil Streak Sensor Enabled

AIR PRESSURE SWITCH CONNECTIONS



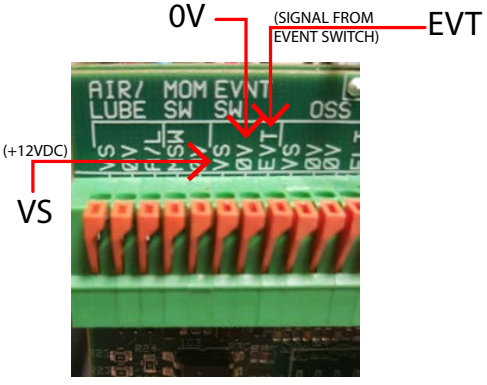
OIL STREAK SENSOR CONNECTIONS



Dry Contact use 0V & A/L
PNP/NPN use 0V,A/L & VS.

Controller Mode - Event Switch Enabled

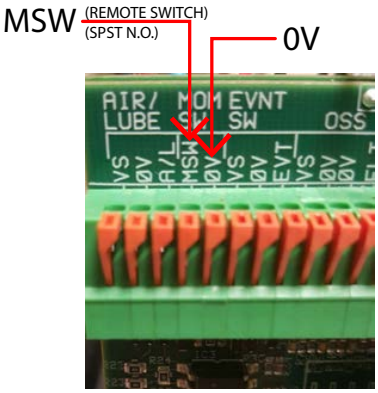
EVENT SWITCH CONNECTIONS



Dry Contact use 0V & EVT
PNP/NPN use 0V, EVT & VS

Run Mode - Remote Momentary Switch

REMOTE SWITCH CONNECTIONS



J10 14 (0V) & 15 (MSW)

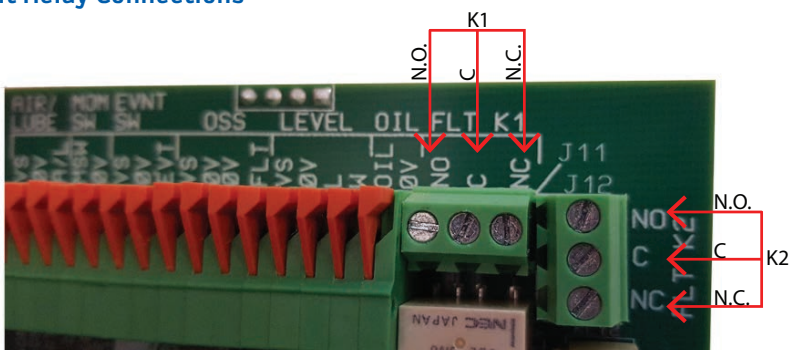
ATTENTION: Remote Momentary Switch Facility

Fitting a remote momentary switch to J10 terminals 14 & 15, the controller will respond identical to pressing the DOWN arrow key pad. In RUN mode, if it sees this input, it will begin a new cycle beginning with the Time On setting(T1).
(This input is not enabled when in PROGRAM mode)

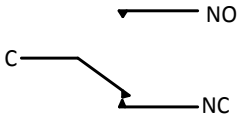
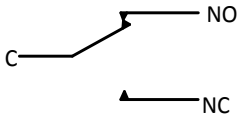
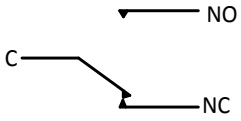
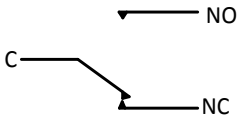
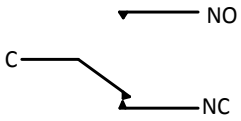
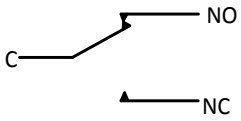
Premium Controller

Fault Relays and Fuses

Fault Relay Connections



Fault Relay States:

Fault Relay K1 - NO (Normally Open), C (Common) and NC (Normally Closed)		
		
De-Energized/Power Off	Power On State	Fault State
Fault Relay K2 (Only used for a warning if the reservoir level is approaching low)		
		
De-Energized/Power Off	Power On State	Fault State

Relay Specifications

Contact Rating / Max. Switching Power	30W / 37.5VA
Max. Switching Voltage (Term.Strip/DIN)	250 VAC 220 VDC
Max. Switching Voltage (Via M12 Connector)	50 VAC 50 VDC
Max. Switching Current	1 A
Max. Carrying Current	1 A

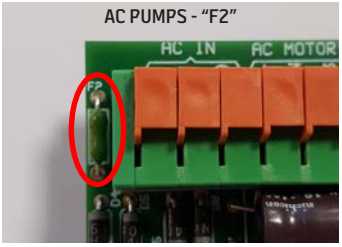
NOTE:

On 'Power ON' the K1 relay will Switch as shown to the left, this enables power monitoring from an external resource if required.

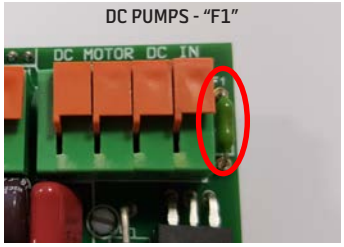
Timer Control Board Protection

The controller board is fitted with an on board 5 amp fuse. **Fuse P.N. 71110.**

AC PUMPS - "F2"



DC PUMPS - "F1"



NOTES ON REPLACING FUSE:

Remove the fuse using a miniature pliers and fit the new fuse,

Ensure the fuse is pushed in correctly.

Premium Controller

Programming

Programming the Controller W4 Mode

Run Screen Parameters:

T1 = Pump On Time-pressure switch disabled (Hours: Minutes: Seconds)
= Pump Hold Time-pressure switch enabled (Hours: Minutes: Seconds)

T2= Pump Off Time (Hours: Minutes: Seconds)

T3= Pump On Monitoring Time, time to wait to receive pressure switch signal (Seconds)

W2= Oil Pressure Switch Mode

B1/B2= See Power Off Options, page 28

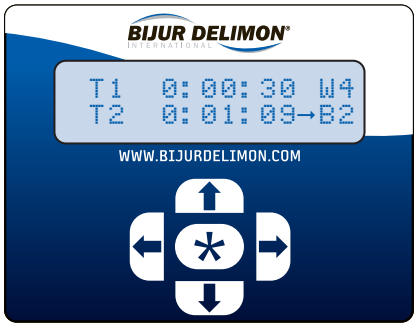
Once the controller is powered up and the reservoir is filled above the Min Level, the controller will start-up with the 'BIJUR DELIMON' screen. After 3 seconds the 'RUN SCREEN' will appear.

MAX TIME SETTINGS:

T1 ON-TIME
AC: 0 HRS / 2 MIN / 59 SEC
DC: 24 HRS / 59 MIN / 59 SEC

T2 OFF-TIME
AC: MINIMUM 4 X "T1" (S3 DUTY CYCLE)
DC: 24 HRS / 59 MIN / 59 SEC

T3 PUMP ON MONITORING TIME: 99 SEC

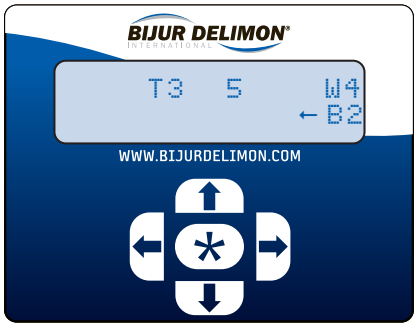


THE RUN SCREEN

T3 Setting

Press the ➡ in Run Mode to view T3

Press ⬅ to return to Run Screen (automatically returns to run screen after 5 seconds)



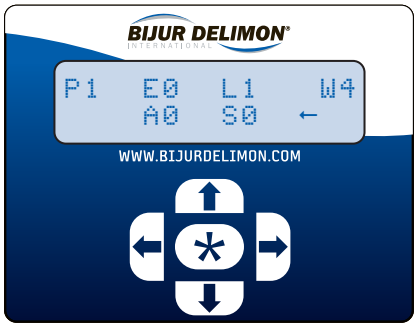
T3 DISPLAY

System Settings:

To view, Press the ➡ ➡

Press ⬅ to return to Run Screen

(Automatically returns to run screen after 5 seconds)



SYSTEM SETTINGS SCREEN

SYSTEM SETTINGS:

P = Pressure Switch

E = Event Mode

L = Pre-Lube

A = Air Pressure Switch

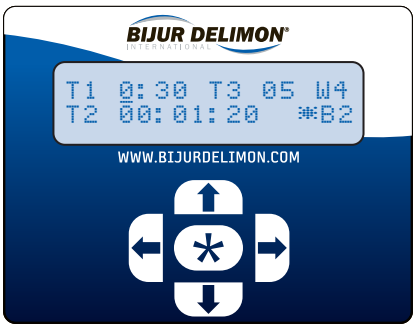
S = Oil Streak Sensor

To enable set to '1'
To disable set to '0'

Premium Controller

Programming

Programming the Controller W4 Mode Cont'd



EDIT SCREEN

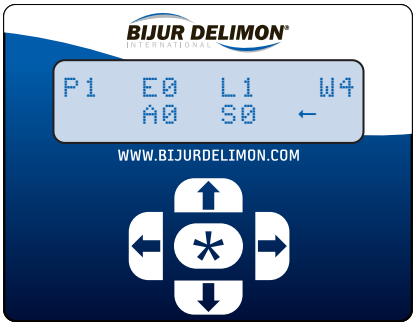
Edits:

To edit the program, press the left key ⬅ and right key ➡ simultaneously.

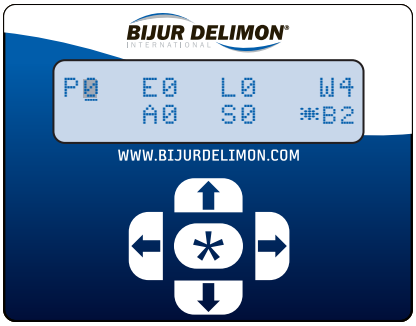
Once in Edit Mode the cursor will appear on the T1 HR (hour) value. To move across and down press the Left Arrow key ⬅ or the right arrow key ➡ . To change any of the values press the UP arrow ⬆ or DOWN arrow ⬇ on that particular field.

T1: Pump Hold Time (after pressure switch is activated)
T2: Pump Off Time
T3: Pump On Monitoring Time, time to wait to receive pressure switch signal (Seconds)
The motor-on time is not defined by one variable. It equates to T1 + Time to receive the pressure switch signal (which can vary depending on many factors).

To save the settings and access the next screen press the * key.



P1 - PRESSURE SWITCH ENABLED



P0 - PRESSURE SWITCH DISABLED

P1 = Pressure Switch Enabled, to disable change to P0

E0 = Event Mode is Disabled,

L1 = Pre Lube is Enabled, to disable change to L0

A0 = Air Pressure Switch is Disabled, to enable change to A1

S0 = Oil Streak Sensor is Disabled, to enable change to S1

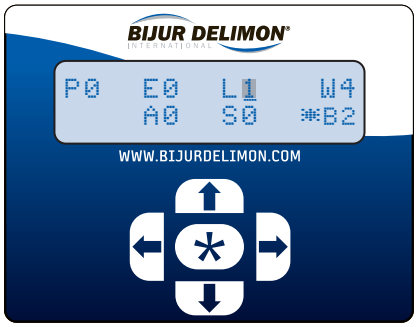
Premium Controller

Programming

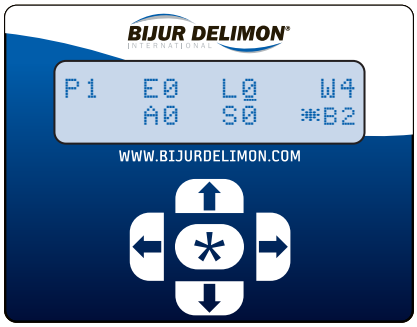
Programming the Controller W4 Mode Cont'd

Pre-Lube Mode:

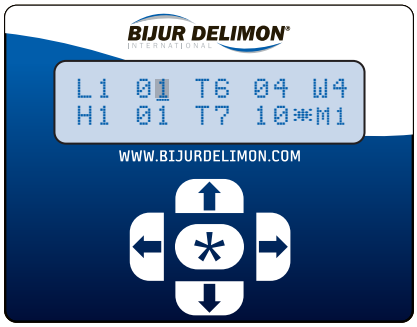
To view or edit the pre-lube setting, bring the cursor over L1, press the ↑ to change to L0 and press ↑ to change to L1, the pre-lube edit screen with be shown.



Move the Cursor to L1



Change to L0 press ↑



Press ↑ pre-lube settings will be shown

L1 = Number of pre lube cycles, increase ↑ or decrease ↓ max number of counts = 30

T6 = Motor on Time (seconds) max time = 20 seconds

H1 = Time (HOURS) to wait before doing a pre-lube once the pump is powered off

H1 = 0, Controller will start with a pre-lube on pump power on

H1 = 1, Pump has to be powered down for a greater time period then 1 hour before pre-lube will come on. Max value = 99 hours

T7 = Motor off time (seconds) max time = 60 seconds

M1 = Start a pre-lube after exiting edit mode.

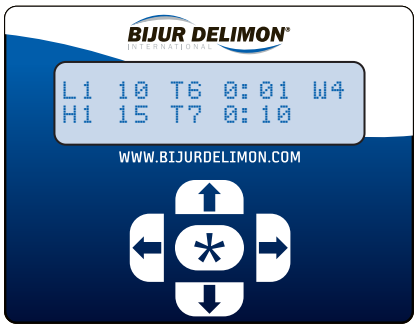
M0 = Do not do a pre-lube after exiting edit mode.

After Editing Press ✱ key to return to main edit screen and ✱ key again to return to the run screen

NOTE: In run mode to cancel a pre-lube press the left key ←.

The controller will automatically start on a new cycle.

In pre-lube run mode the controller is not monitoring the oil pressure switch, pre-lube mode will only monitor the level switch inputs and air pressure switch (if the air pressure switch is enabled)



PRE-LUBE RUN SCREEN

TYPICAL SETTINGS:

L1 = 15 cycles
T6 = 10seconds
T7 = 10 Seconds

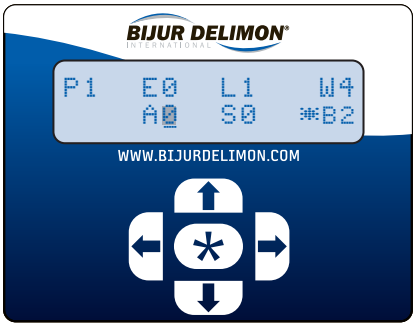
The above can vary depending on the lubrication circuit

Premium Controller

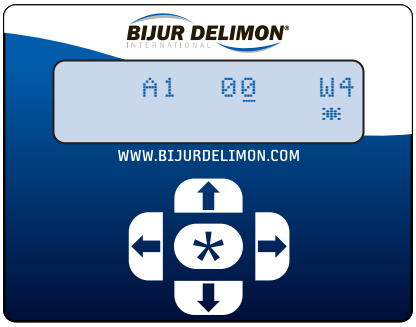
Programming

Programming the Controller W4 Mode Cont'd

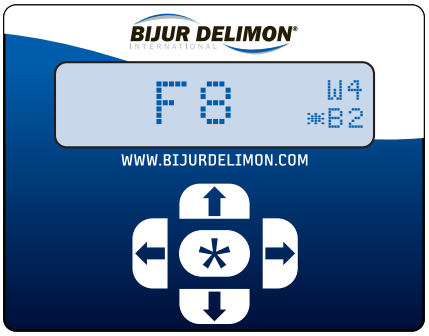
Air Pressure Switch:



Move the Cursor to A0



Change to A1 by pressing



AIR PRESSURE SWITCH FAULT SCREEN

The A1 value is the length of time in seconds the Air Pressure switch has to be enabled (low air pressure) before a fault is shown.

If A1 00 is selected, the air pressure switch fault will be activated once a fault is detected.

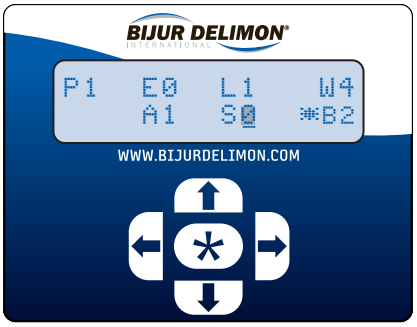
If A1 05 is selected, the air pressure switch fault will be activated 5 seconds after a fault is detected.

After Editing Press * key to return to main edit screen and * again to return to the run screen

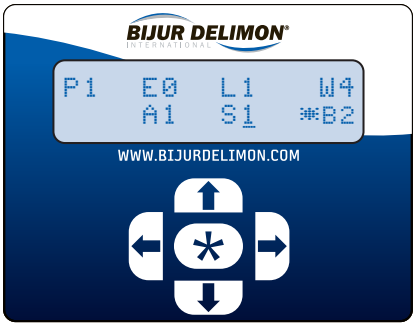
NOTE:

If a air pressure fault occurs, the fault will appear as per the fault screen.
Press the "*" to reset the fault. Once the fault has been corrected the controller will begin a new lube cycle.

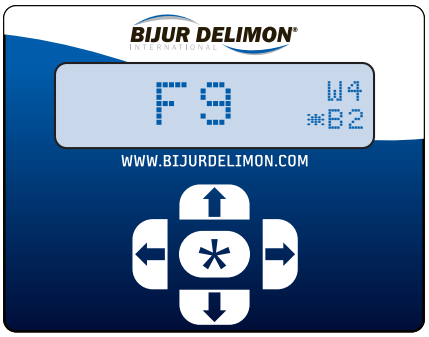
Oil Streak Sensor [OSS]:



Move the Cursor to S0



Change to S1 by pressing



OSS FAULT SCREEN

To enable the OSS input bring the cursor over the S0 and change to S1

Note: if the fault is cleared on the OSS the fault in the Lube Pump will automatically be cleared also.
After Editing Press * key to return to run screen

NOTE:

Clear fault on Oil Streak Sensor, F9 fault will automatically be reset and the controller will begin a new lube cycle.

Programming the Controller W4 Mode Cont'd

Event Mode:
This mode enables the motor off time to be event based instead of time.

Event Mode is the ideal option where there is a switch in the system which gives a pulse to the controller, after a pre-set number of pulses the system requires to be lubricated.

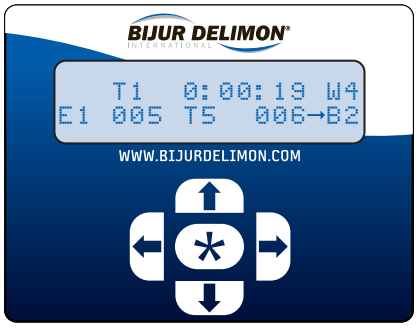
Event Run Screen – Watchdog Time set

T1 = Pump On Time-pressure switch disabled (Hours: Minutes: Seconds)
= Pump Hold Time-pressure switch enabled (Hours: Minutes: Seconds)

E1 = Number of Events (max 999)

T5 = Maximum Allowed Time Between Events

B2= Power Down Mode



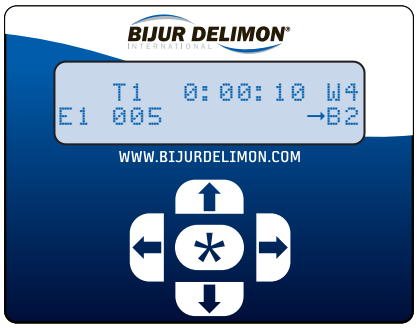
EVENT RUN SCREEN - WATCHDOG TIME SET

Event Run Screen – No Watchdog Time set

T1 = Pump On Time-pressure switch disabled (Hours: Minutes: Seconds)
= Pump Hold Time-pressure switch enabled (Hours: Minutes: Seconds)

E1 = Number of Events (max 999)

B2= Power Down Mode



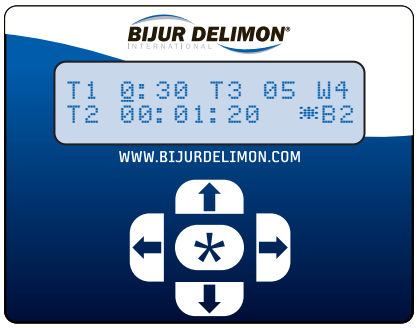
EVENT RUN SCREEN - NO WATCHDOG TIME SET

Edit Screen

T1 = Pump On Time-pressure switch disabled (Hours: Minutes: Seconds)
= Pump Hold Time-pressure switch enabled (Hours: Minutes: Seconds)

T3= Pump On Monitoring Time, time to wait to receive pressure switch signal (Seconds)

T2 = Not Applicable for Event Mode



EDIT SCREEN

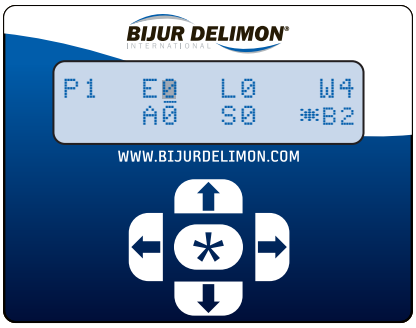
Premium Controller

Programming

Programming the Controller W4 Mode Cont'd

Press the * key

Move Cursor over E0 and Change to E1 (if set to E1 then change to E0 and E1 to edit)



EVENT RUN SCREEN - NO WATCHDOG TIME SET

Event Set-Up Screen

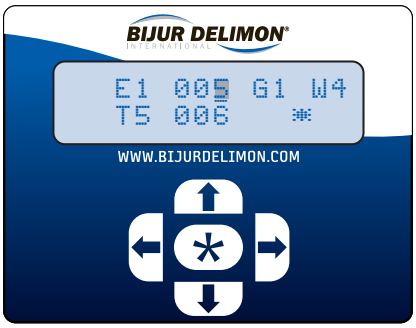
E1 = Number of Events (max 999)

G1 = Event Watchdog Timer (T5) enable

G0 = Event Watchdog Timer disable

T5 = Maximum time between each event

After Editing Press * key to return to main edit screen and * key again to return to the run screen



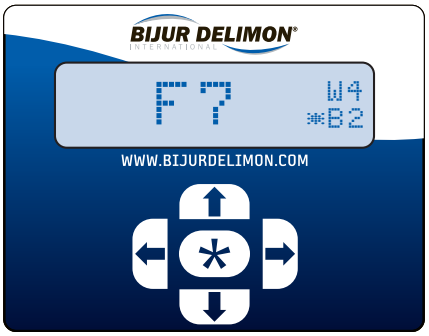
EVENT SET-UP SCREEN

Event Watchdog Timer Fault (only if G1 is selected)

Faults:

If a event timer Watchdog Timer fault occurs, the fault will appear as per the fault screen.

Press * key to reset the fault. Once the fault has been corrected, the controller will begin a new lube cycle.

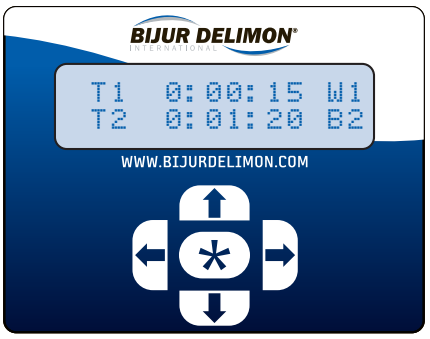


EVENT FAULT SCREEN

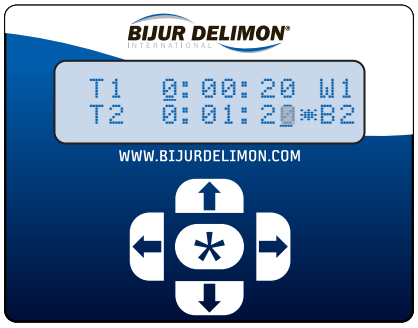
Password Functionality

Standard on all Timer & Controller versions

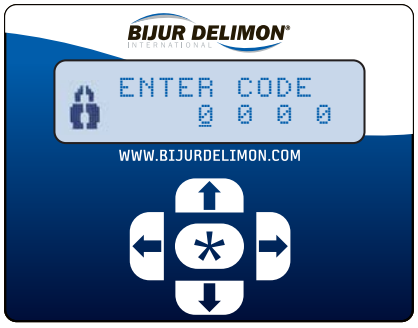
As of Firmware Version 1.3, password functionality is available. The password, if enabled, shall prevent a user from making changes to any parameters without first entering a 4-digit pass code. Controller/Timer pumps will be supplied with this password functionality disabled as default.



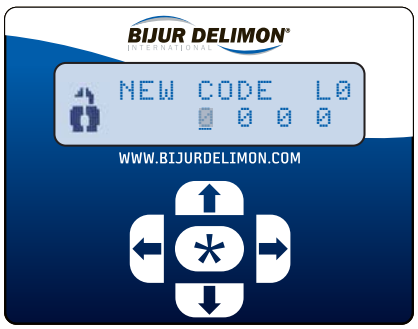
RUN SCREEN



EDIT SCREEN



PASSWORD ENTRY SCREEN



PASSWORD EDIT SCREEN

To Enable Password Functionality:

Enter EDIT screen by pressing the ← and the → arrow keys simultaneously while in RUN screen.

While in EDIT screen, press the ← and the → arrow keys simultaneously.

This will bring up Password Entry Screen.

Enter **Password 0 0 0 0** (default password)

Press * key

This will bring up Password Edit screen.

This PASSWORD EDIT screen allows you the option:

1. To create a new 4-digit code (by entering a new code using ↑ and ↓ arrows for selecting the digit and ← and → arrows for advancing to next digit)

2. To enable the Password Functionality (by toggling L0 -> L1)

3. To disable the the password functionality (by toggling L1 -> L0)

Save the settings once more by hitting *

This will bring the controller back into the RUN screen.

When the password is enabled, a user will be presented with the PASSWORD ENTRY screen prior to entering the EDIT screen. The user must enter the appropriate code and press * to advance into EDIT screen. This screen will time out should no key be detected in 5 seconds. If an incorrect code is entered, the screen will display ERROR CODE.

To Disable the Password Functionality:

Enter the EDIT screen by entering the password at the PASSWORD ENTRY screen.

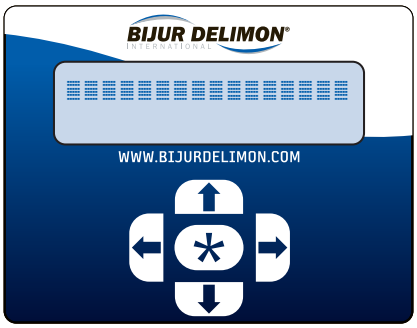
Press the ← and → arrow keys simultaneously to enter PASSWORD EDIT screen.

Toggle the password enable flag from L1 to L0.

Hit * to save settings and exit to RUN screen once more.

Note: It is best practice to change the password to 0000 when disabling the password functionality.

Troubleshooting

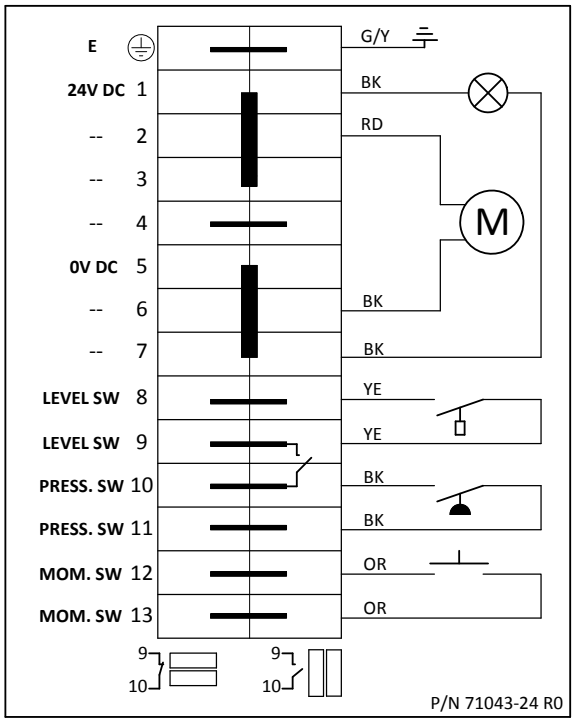
	Fault	Possible Cause	Remedy
GENERAL	**The lube pump is powered up and no lubricant is pumped out the outlet port.**	Gear pump is Jammed	Remove the gear head, rotate the shaft on the gear head and ensure the resistance in not high, if the resistance is high replace the gear head.
		Motor is Jammed	Measure the current in the motor, if the current is high replace the motor.
		Incorrect rotation of the motor	Check that the motor is wired correctly and running in the correct direction.
	No pressure been built up in the main outlet line.	Pressure relief valve does not closed, leak in the main line.	Check that there is no lubricant coming out the relief valve, check that the lubrication circuit does not have a leak, (fit a plug to the pump outlet, turn on the pump and check if it will build up pressure, if it does the internal relief valve is ok and the fault is in the lube lines).
CONTROLLER	**If a blank screen appears on the controller display.**  BLANK SCREEN	The controller processor has not powered up correctly (Controller powered on/off too quickly)	Turn off the Lube pump for 10 seconds and reboot. If the screen does not reboot, power down the pump and check all connections and the input main power, reboot again. If the above does not work, replace the controller.
	Membrane switch keys do not activate the controller.	Controller not powered up correctly, a fault has occurred in the membrane switch	Turn off the Lube pump for 10 seconds and reboot. OR Replace the front membrane switch. (p.n. 71029)
	Controller is not powering up, no light on display	Incorrect power supplied, controller on-board fuse is blown	Check the incoming power supply Power down the pump, and check the controller fuse (see manual for information)

Troubleshooting

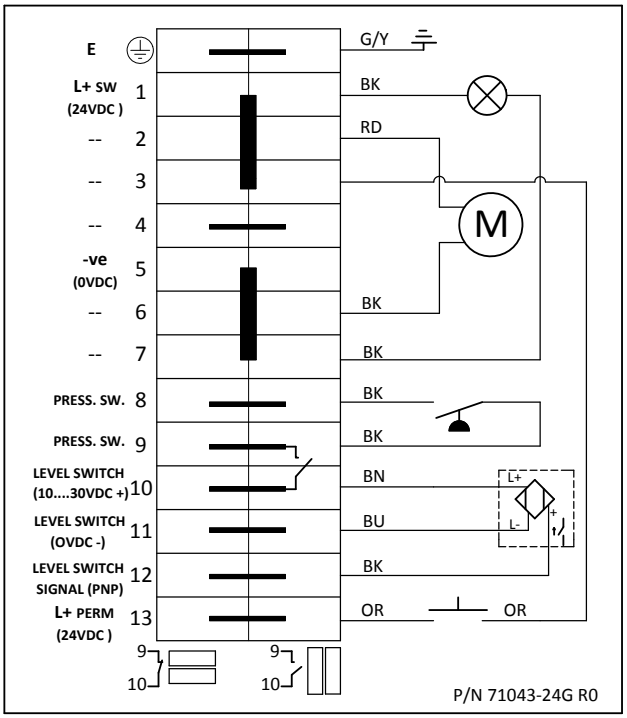
	Fault	Possible Cause	Remedy
CONTROLLER	**Erratic behavior while setting parameters**	One or more membrane switch keys may be stuck in the closed position.	Check and replace membrane switch if necessary.
	Low Level Fault (F1) when reservoir is not empty	Open circuit detected by controller.	Check Security of level switch wiring in controller, Faulty Reed Switch in level switch, Replace Level Switch.
	Warning Level Fault when float is up to max position.	Open Circuit detected by controller. Check Security of wiring of level switch, faulty reed switch	Replace level switch
	Low Level Switch doesn't fault when reservoir is empty.	Float Stuck in Higher Position or faulty reed switch.	Check Float position, if reed switch faulty, replace level switch.
	Air Pressure switch doesn't register a fault.	Air pressure switch is disabled in the controller/program. Pressure switch set point is not set up correctly. Pressure switch not wired correctly.	Air Pressure Switch is Disabled, Enable Air Pressure Switch. Time to fault is set too long, check A1 setting. Incorrect wiring of the air pressure switch, wiring should be to the Normally Open Contacts of the air pressure switch.
	Air Pressure Switch faults when there is adequate Air Pressure	Incorrect Wiring of the Switch Wiring should be to the Normally Open Contacts of Switch not making	Open Circuit detected by controller Check security of wiring. Fluctuations in Air Pressure causing switch to drop out Increase AIR PRESSURE FAULT time. Air Pressure Switch not connected to the correct terminal on the board. Check wiring Check setting of Switch. Check contacts.
	Oil Pressure Switch Fault (F3) pressure switch contacts closed at the start of the cycle.	Pressure Switch contacts remaining closed when pressure is released.	Check wiring of pressure switch, Check contacts of switch. Replace pressure switch if necessary.
	Oil Pressure Switch Fault (F5) time set too short for the particular installation.	The lube pump has not reached the pressure switch set point with-in the time set 'T3'	Increase the time (T3) and re-check.
	Oil Streak sensor fault (F9), no fault on Sensor	The Fault Contact in the Oil Streak Sensor should be set to N/O.	Change the fault contact setting on the Oil Streak sensor from N/C to N/O

Wiring Diagrams

SureFire II - 24 VDC

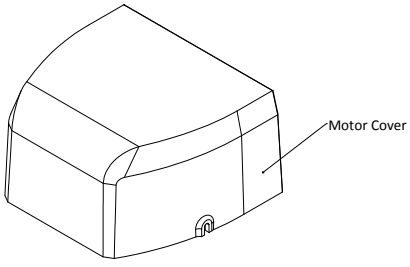


Terminal Strip



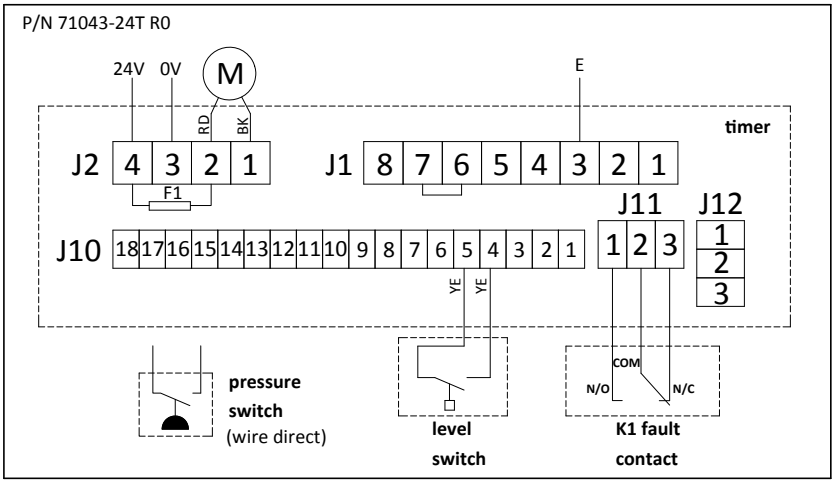
Grease

Note:
All wiring diagrams are located on the inside of the motor cover of Surefire II.

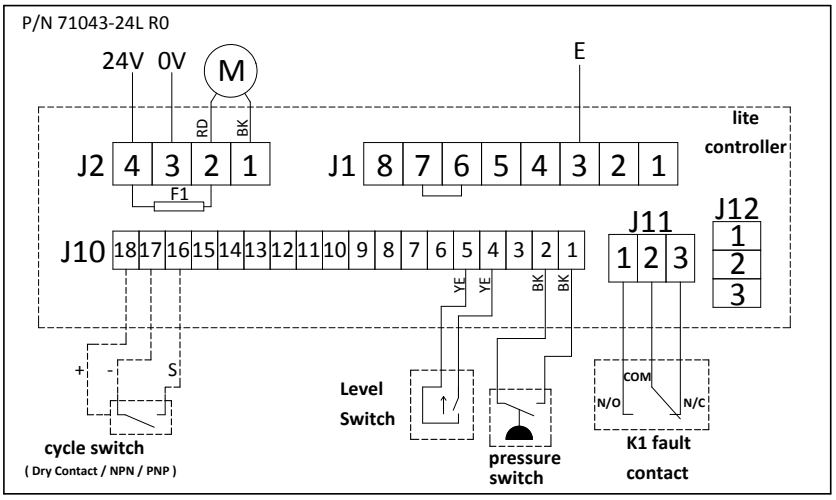


Wiring Diagrams

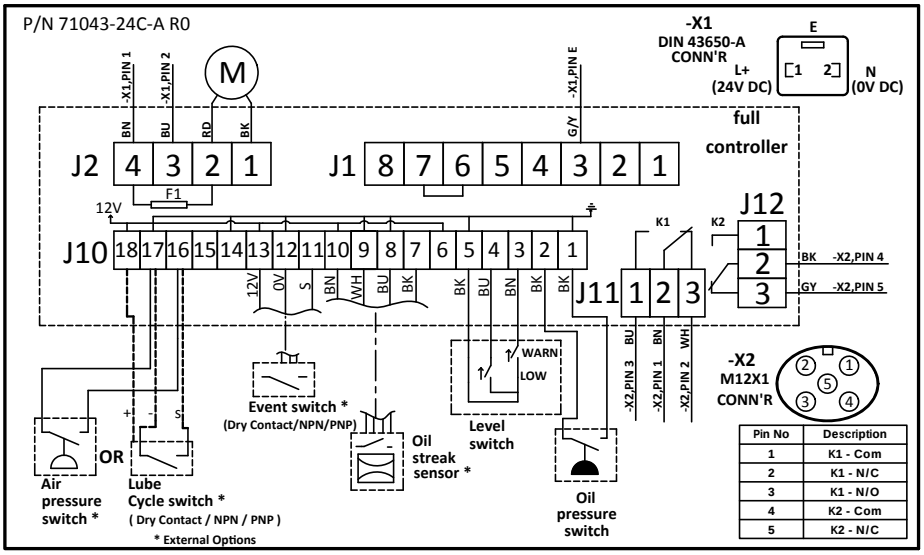
SureFire II - 24 VDC



Timer



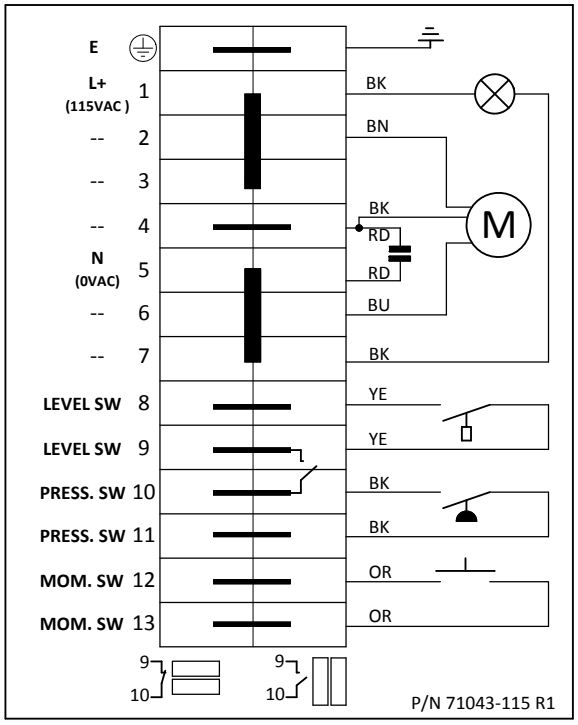
Lite Controller



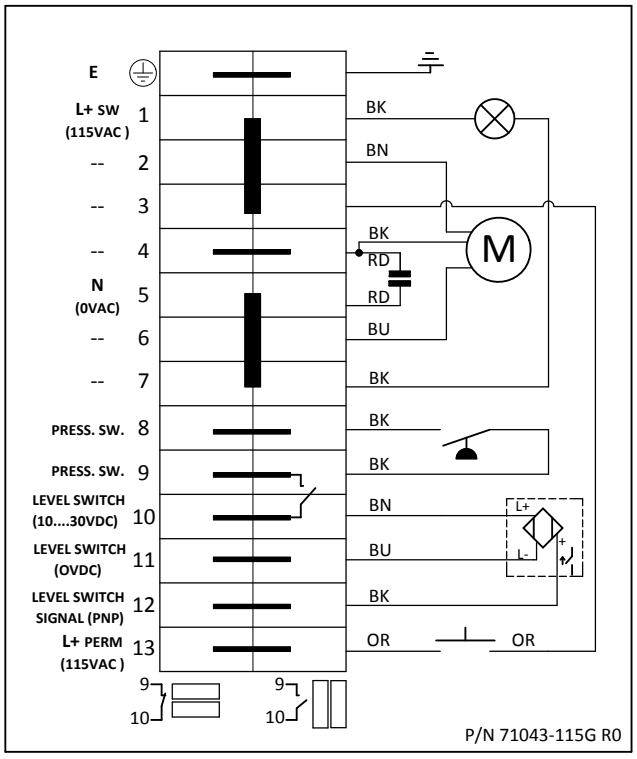
Premium Controller

Wiring Diagrams

SureFire II - 115 VAC



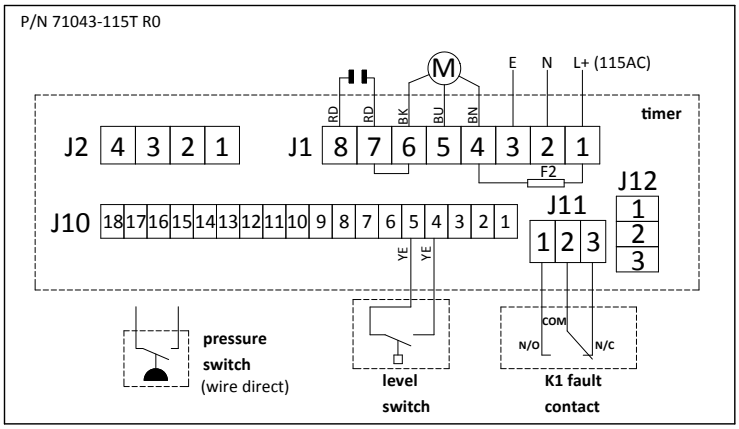
Terminal Strip



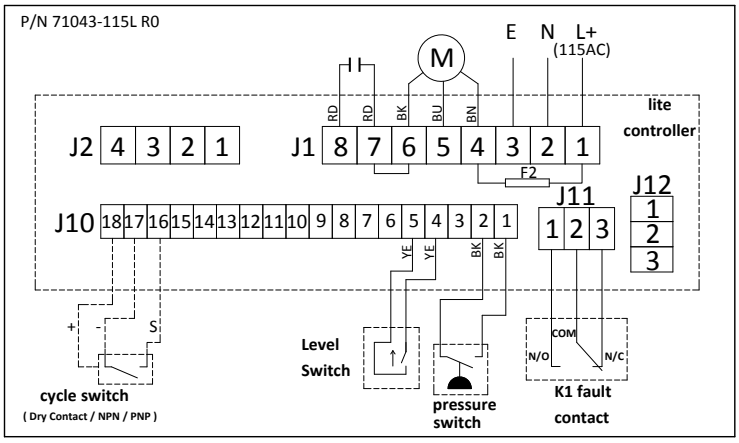
Grease

Wiring Diagrams

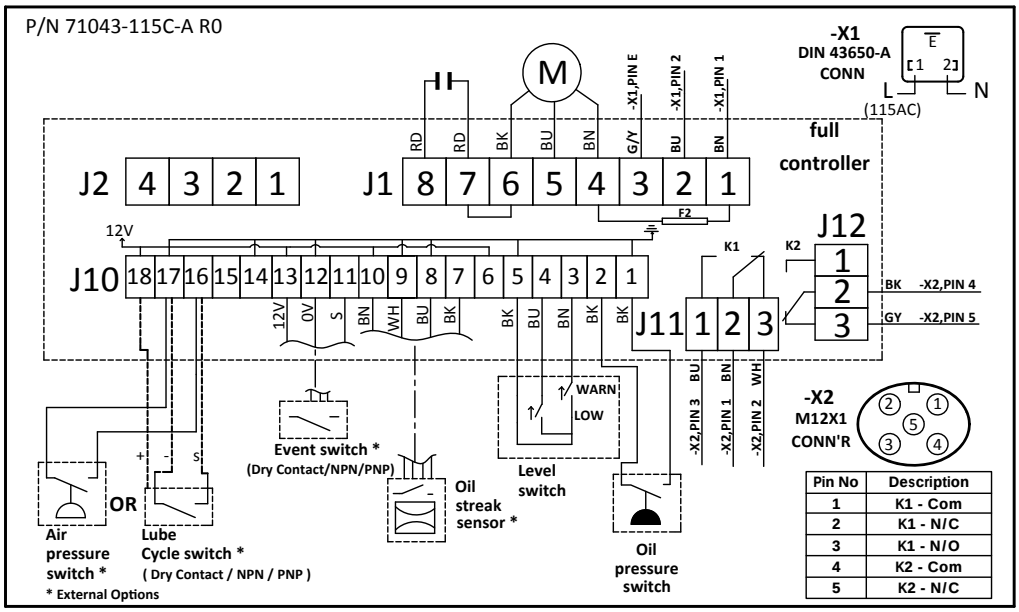
SureFire II - 115 VAC



Timer



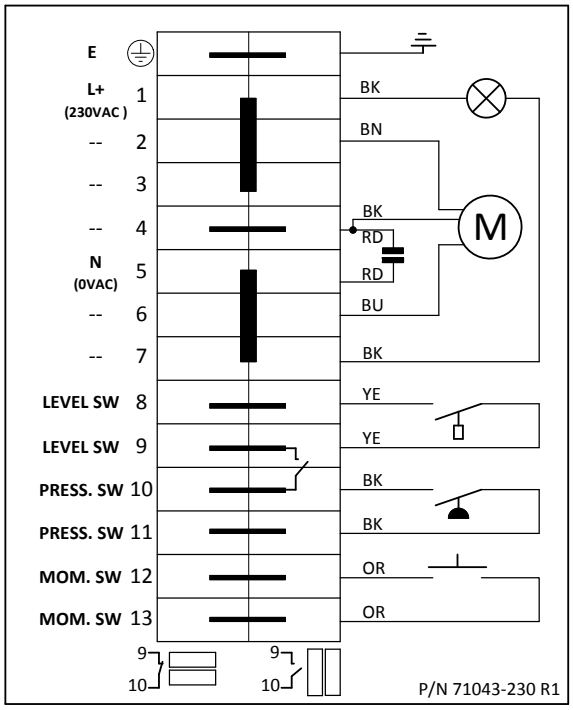
Lite Controller



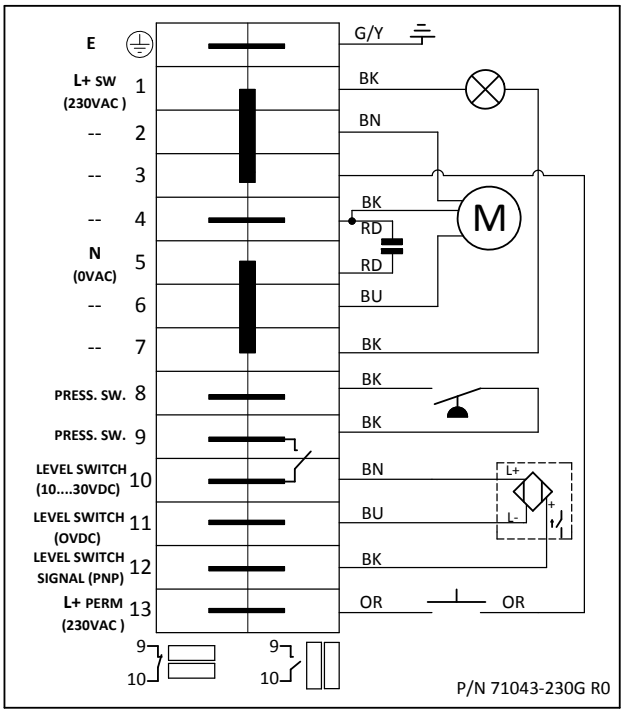
Premium Controller

Wiring Diagrams

SureFire II - 230 VAC



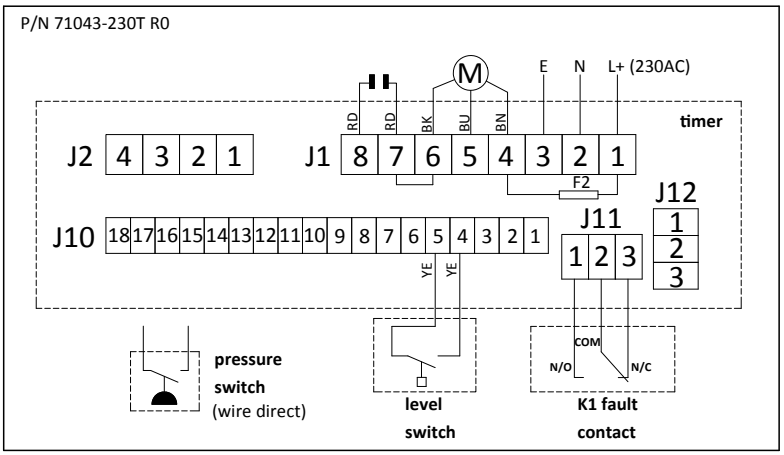
Terminal Strip



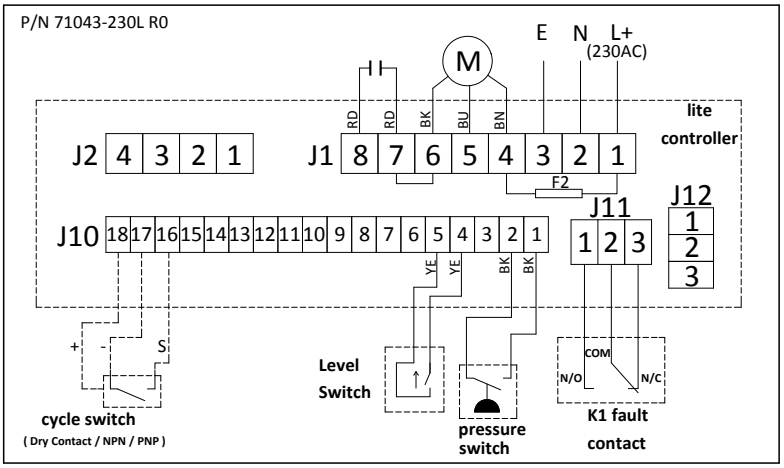
Grease

Wiring Diagrams

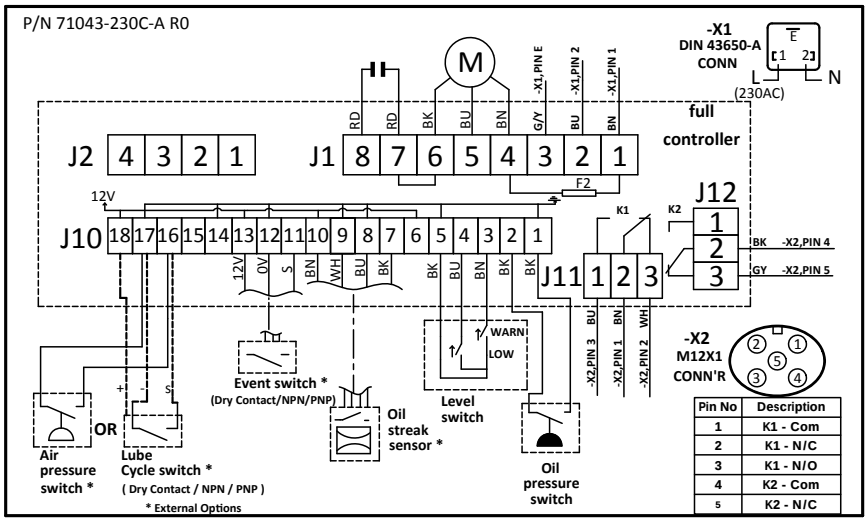
SureFire II - 230 VAC



Timer

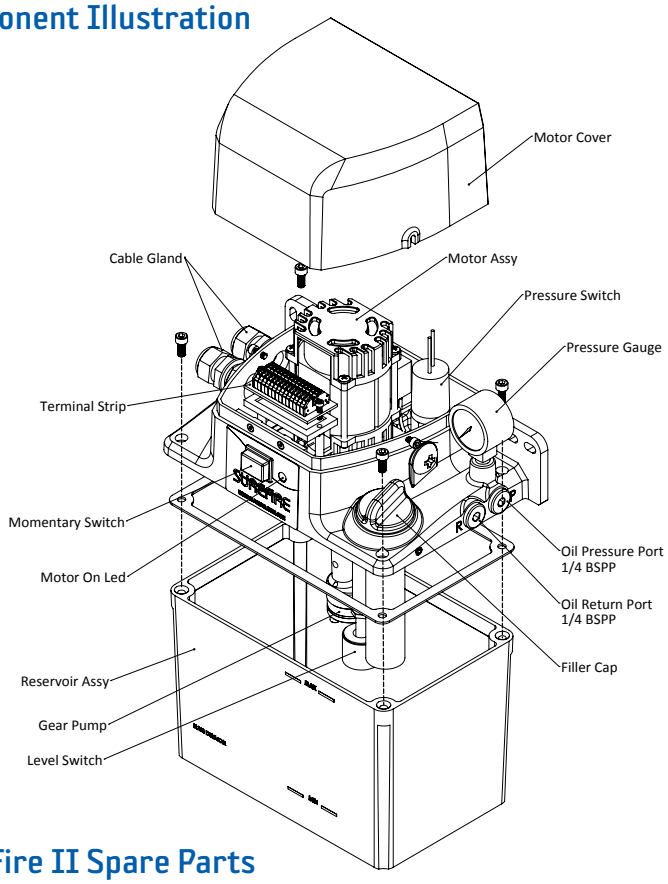


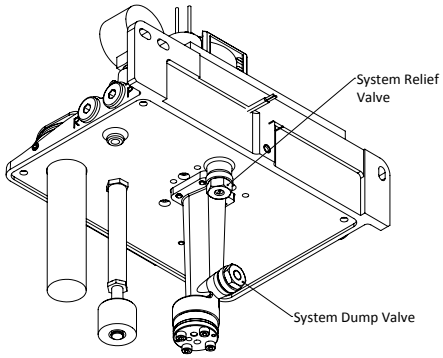
Lite Controller

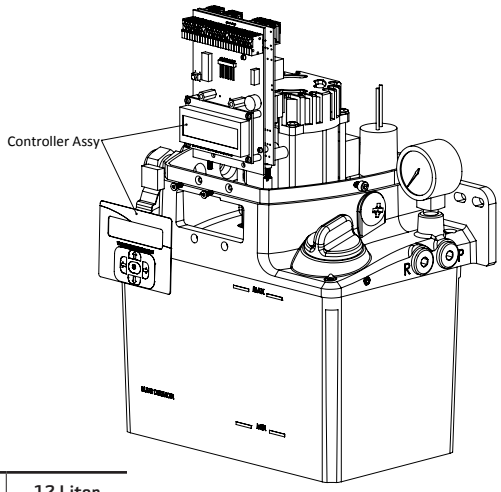


Premium Controller

Component Illustration







SureFire II Spare Parts

SureFire II Reservoir Size:	2 Liter	3 Liter	6 Liter	12 Liter
Part Description	**Part #**	**Part #**	**Part #**	**Part #**
24VDC Motor Kit (includes driveshaft + Coupling)	71111-2		71111-6	71111-12
115VAC Motor Kit (includes driveshaft + Coupling)	71112-2		71112-6	71112-12
230VAC Motor Kit (includes driveshaft + Coupling)	71113-2		71113-6	71113-12
Reservoir Kit PLASTIC (gasket included)	71114	71115	71116	N/A
Reservoir Kit METAL (gasket included)	71064	71066	71068	71135
Motor Cover Kit	71117	71118	71118	71118
Pressure Switch Kit PDI Pump	71119			
Pressure Switch Kit SLR Pump	71120			
Filler Cap Kit (with Inlet Filter Unit)	71121			
Terminal Strip Kit	71122			
Controller Kit - TIMER	71123-T			
Controller Kit - LITE Controller	71123-L			
Controller Kit - PREMIUM Controller	71123-P			
Membrane Switch/Label Kit for Timer/Controllers	71029			
Level Switch Kit (Standard Oil Option)	71124-2		71124-6	71124-12
Momentary Switch Kit	71125			
Motor on LED 115VAC / 230VAC	71126			
Motor on LED 24VDC	71127			
Gear Pump Kit	71128			
Pressure Gauge (PDI)	71129			
Pressure Gauge (SLR)	71130			
Dump Valve Kit	71131			
Relief Valve Kit (PDI)	71132			
Relief Valve Kit (SLR)	71133			
Cable Gland Kit	71134			

Maintenance and Service

The SureFire II lubricator does not require much maintenance. After initial set-up, the lubricator requires only the following maintenance:

a) When filling the reservoir with oil, the lubricant must be poured through the oil-filler screen
b) The oil-filler screen must be inspected after every 4 or 5 fillings and cleaned if necessary
c) If filling with a fluid grease, due to the fact that SureFire II PDI fluid grease models omit the filter screens, be sure the grease is fresh, clean, and is not higher than 40,000 cSt viscosity.
d) Do not use aggressive cleaners to clean the lubricator. Use only mild cleaners or degreasers to clean the lubricator

In the event of having to replace a pressure gauge, appropriate pipe thread sealant applied to the male thread of the new gauge is recommended.

Surefire II Accessories

Field-Wireable Connectors

Electrical Connectors				
		CONNECTOR TYPE	POWER CONNECTORS	
FIELD-WIREABLE	Terminal Strip Pumps	DIN 43650-A 4 POLE	60726	
	Controller Pumps -Timer/ Lite/Premium	DIN 43650-A 3 POLE	60726	
			Straight	Angled
	24 VDC	M12 -5 POLE FEMALE	23694	23694-1
			SIGNAL CONNECTORS	
			Straight	Angled
	115 / 230 VAC 1P Single Position Low Level	M12 - 4 POLE FEMALE	23694	23694-1
	115 / 230 VAC 1P Two Position Low Level	M12 - 5 POLE FEMALE	23694	23694-1
	24 VDC	M12 -5 POLE MALE	23846	23846-1

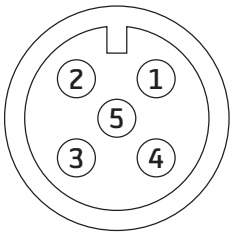
Cable Assemblies

Electrical Connectors with Cables						
		CONNECTOR TYPE WITH CABLE		POWER CABLES		
				2 METER LG	5 METER LG	10 METER LG
CABLE ASSEMBLIES	Terminal Strip Pumps	DIN 43650-A 4 POLE		DIN402U75	DIN405U75	DIN410U75
	Controller Pumps -Timer/ Lite/Premium	DIN 43650-A 3 POLE		DIN302U75	DIN305U75	DIN310U75
	24 VDC	M12 -5 POLE FEMALE	Straight	M125S02U34	M125S05U34	M125S10U34
			Angled	M125A02U34	M125A05U34	M125A10U34
				SIGNAL CABLES		
				2 METER LG	5 METER LG	10 METER LG
	115 / 230 VAC 1P Single Position Low Level	M12 - 4 POLE FEMALE	Straight	M124S02U34	M124S05U34	M124S10U34
			Angled	M124A02U34	M124A05U34	M124A10U34
	115 / 230 VAC 1P Two Position Low Level	M12 - 5 POLE FEMALE	Straight	M125S02U34	M125S05U34	M125S10U34
			Angled	M125A02U34	M125A05U34	M125A10U34
	24 VDC	M12 -5 POLE MALE	Straight	M125S02U34M	M125S05U34M	M125S10U34M
			Angled	M125A02U34M	M125A05U34M	M125A10U34M

DIN & M12 CONNECTORS

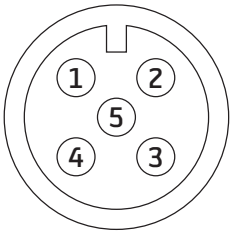
DIN CABLE ASSEMBLY

DIN & M12 CONNECTORS DETAILS



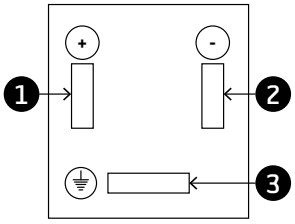
24VDC M-12 Power Connector (MALE)

Pin #	Description	Wire Color
1	24VDC (+)	Brown
2	---	White
3	0V (-)	Blue
4	---	Black
5	Earth/Ground	Green/Yellow



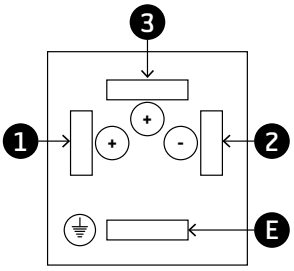
24VDC M-12 Signal Connector(FEMALE)

Pin #	Description	Wire Color
1	K1 COMMON	Brown
2	K1 N/C	White
3	K1 N/O	Blue
4	K2 COMMON	Black
5	K2 N/C	Green/Yellow



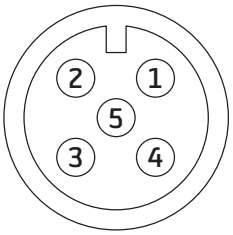
Power Electrical DIN Connector [Controller]

Pin #	Description
1	(+) AC/DC - Live - Brown
2	(-) AC/DC Neutral - Blue
3	Earth / Ground- Green/Yellow



Power Electrical DIN Connector [Terminal Strip]

Pin #	Description
1	(+) AC/DC Live - Black
2	(-) AC/DC Neutral- Blue
3	(+) AC/DC Switch - Brown
E	Earth / Ground- Green/Yellow



115/230VAC M-12 Signal Connector(MALE)

Pin #	Description	Wire Color
1	K1 COMMON	Brown
2	K1 N/C	White
3	K1 N/O	Blue
4	K2 COMMON	Black
5	K2 N/C	Green/Yellow

How To Order

Reservoir Capacity
2– 2 liter
3– 3 liter
6– 6 liter
12– 12 liter

Reservoir Material
P– Plastic - Luran (Blue Tint)
M– Metal - Painted Steel
12 Liter is only available in metal

Distribution System
A– SLR - 75psi Relief Valve (SLR is Oil only)
B– PDI - 450psi Relief Valve

Lubricant
S– Oil 20-1500 cSt
L– Oil 5-40 cSt
G– Grease 000-00 (40,000 cSt max)

Level Monitoring
X– None
N– Standard
- Oil.....1 x N/O float switch
- Grease...1 x N/O capacitive sensor
A– 1 x C/O float switch (Oil only, changeover, three wires)
B– 2 x N/O, 2-position float switch (Oil only)
C– 1 x N/O(low), 1xN/C(warning), 2-position float switch(Oil only)

Pressure Monitoring
X– None
G– Pressure Gauge
N– Pressure switch (N/O) + Pressure gauge
S– Pressure switch (N/O)

Voltage
B– 24 VDC, 2.4 amps
C– 100/115 VAC, 50/60 Hz, 1.0 amps Single Phase
D– 200/230 VAC, 50/60 Hz, 0.70 amps Single Phase

Electric Connector
X– 2 x cable glands
A– DIN A for power + 1 x cable gland
B– DIN A for power + 1 x M12 for signal
C– 2 x M12 power + signal (24VDC only)
DIN & M12 connectors sold seperate

Integrated Controls
X– Terminal block
A– Terminal block + Momentary Switch + Motor 'on' LED
B– Timer
C– Controller Lite Functionality
D– Premium Controller Complete
All versions are CE approved

Method of Fill
N– Standard filler cap (Oil version has integrated strainer)
A– ISO 7241 Quick coupling male (plug)
B– Cnomo Approved quick coupling male
C– Quick coupling male for grease

NOTE:
*Items in **BOLD** are standard options. Other options may have longer lead time.*

ISO7241 Quick Coupling Note:

+ *For Option A on Method of Fill, the Mating Socket connector is p.n. UX43521 (1/4"NPTF)*

Refer to the following documents:

+ *Data sheet #36410: Surefire II*

Notes