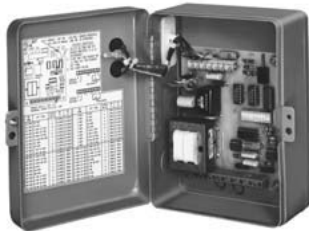


Selecting the right controls for your automated lubrication system is one of the last steps in the design process. Several different models may be chosen to control power-operated pumps, depending on the degree of automation and monitoring required. Your Lincoln representative will assist you in specifying the correct model.

Options range from simple timers to fully-automated system controllers and monitors. Basic timers allow you to set the interval between lubrication cycles. More sophisticated monitors control the frequency of lubrication, oversee system performance and can sense lubricant flow to each bearing while showing system status and alarms on a LCD display panel. Monitors may be interfaced with machine control systems to protect your equipment from harm.

You may customize your installation with air and lubricant filters to prolong system life, pressure gauges for monitoring, shut-off valves to ease future maintenance and even automated filling systems to utilize bulk lubricant storage.

All of these possibilities, and more, have made Lincoln Automated Lubrication Systems the choice of industry for over 80 years.



### Model 84501 Program Timer—Solid State

Designed to control the lubrication cycle frequency of air-operated single-stroke pumps. Timer turns pump on/off at programmed intervals via a 3-way or 4-way air solenoid valve (not included) installed in the air line to pump.

Off Time (Cycle Time)		On Time (Pumping Time)		Power Requirements	Approvals	Switch Capacity
Min	Max	Min	Max			
20 Sec.	24 Hrs.	10 Sec.	1 Min. 24 Sec.	120/230 VAC 50/60 Hz	UL, CSA	120 VAC, 5 Amps 230 VAC, 1.5 Amps

Built-In Program Options				Enclosure			Ambient Operating Temperature Range		
3 Hr. Program Memory		Pre-lube Function		Rating	Dimensions-in./mm			Minimum	Maximum
Yes	No	Yes	No		Height	Width	Depth		
Yes	No	Yes	No	NEMA #1	8¼ 210	6¼ 173	4¼ 125	0°F -18°C	130°F 54°C

**Note:**

Refer to Technical Manual for a full explanation of available program options.

### Model 84511 Economy Timer for Single Stroke Pumps

Uses a timing motor, cam and switch to turn pump off and on. NEMA 1 enclosure, UL and CSA listed. Switch capacity 10 amps non-inductive.

Off Time (Cycle Time)		On Time (Pumping Time)		Power Requirements	Approvals	Switch Capacity
Min	Max	Min	Max			
5 Min.	1 Hr.	30 Sec.	90 Sec.	120 VAC, 60 Hz	UL, CSA	10 Amps

**Note:** Off-time selectable in 5 minute intervals.

Enclosure			
Rating	Dimensions - in. / mm		
	Height	Width	Depth
NEMA 1	5 / 127	3¼ / 82.5	3½ / 89



## Model 84015 Timer—12-24V DC

Solid-state microprocessor-based controller for automated lubrication systems on mobile equipment or where AC power is not available. Rugged construction with liquid- and dust-tight enclosure. Includes manual push-button for remote initiation of a lube cycle.

Off Time** (Cycle Time)		Fixed On Time (Pumping Time)	Power Requirements	Switch Capacity
Min.	Max.			
2.5 Min.	80 Min.	75 Sec.	10-30 VDC 25 MA*	5 Amps

\* Less load.

\*\* Available selections are 2.5, 5, 10, 20, 40 or 80 minutes.

Rating	Enclosure			Ambient Operating Temperature Range	
	Dimensions-in. / mm			Minimum	Maximum
	Height	Width	Depth		
NEMA 12	5¼ / 133	3⅞ / 79	3 / 76	0°F / -18°C	131°F / 55°C

## Model 85520 Programmable Controller

Microprocessor-controlled, 120 volt AC unit is fully programmable. Controller has a wider off-time range than timers, features an adjustable pressure switch (280-3000 psi) and a memory switch to turn pre-lube option on or off.



Off Time (Cycle Time)		On Time (Pumping/ Alarm Time)		Power Requirements	Switch Capacity Inductive Load at 30VDC	
Min.	Max.	Min.	Max.		Load Relay	Alarm Relay
30 Sec.	30 Hours	30 Sec.	2 Min.	21-30 DC 100 MA*	2 Amps	2 Amps

Rating	Enclosure			Ambient Operating Temperature Range	
	Dimensions-in. / mm			Minimum	Maximum
	Height	Width	Depth		
NEMA 12	7½ / 191	4 <sup>15</sup> / <sub>16</sub> / 125	3½ / 89	0°F / -18°C	130°F / 55°C

\* Less load.

## Model 85525 Programmable Controller

Same as Model 85520 except includes pressure switch and mounting brackets.

## Model 85535 System Controller—24V DC

Same as Model 85520 except is a 24-volt DC.



## Model 85530 Lubrication System Controller

Controls lubrication frequency and monitors supply line pressure. The LCD displays operating status.

Lube Cycle				Max. Count Rate*	Pumping Time Before Alarm	
Timer Mode Off-Time		Counter Mode Off-Counts			Min.	Max.
Min.	Max.	Min.	Max.			
1 Minute	9,900 Minutes	1 Count	99,000 Counts	30/Sec. @ 50% Duty Cycle	1 Minute	99 Minutes

\* Minimum duration of count signal is 33 milliseconds.

Power Requirements (less load)		Pump, Solenoid, or Alarm Capacity	Ambient Temperature Range	Rating	Enclosure		
Voltage	Current				Height	Width	Depth
120 VAC, 50/60 Hz	85 MA	360 VA	32° to 122°F 0° to +50° C	NEMA 12	9½ 241	8½ <sub>16</sub> 227	4½ 105
230 VAC, 50/60 HZ	45 MA						
24 VDC	250 MA	5 Amps					

**Note:** Model 85530 is CSA/NRTL approved.



## Model 85209 Panel Mounted Pneumatic Control System

Panel mounted units control lubrication frequency and monitor supply line pressure. Includes Model 85530 Controller (specifications above), Model 69630 Pressure Switch and solenoid-operated air valve.

Lube Cycle				Max. Count Rate	Pumping Time Before Alarm		Connections	
Timer Mode Off Time		Counter Mode Off Counts			Min.	Max.	Air	Lube
Min.	Max.	Min.	Max.					
1 Minute	9,900 Minutes	1 Count	99,000 Counts	30/ Sec.	1 Minute	99 Minutes	¾" NPTF(F)	¾" NPTF(F)

Power Requirements		External Alarm Load Capacity	Ambient Temperature Range	Panel Dimensions in. / mm	
Voltage	Current (less load)			Height	Width
120 VAC, 60 Hz 110 VAC, 50 Hz	47 VA	360 VA	32° to 122°F 0° to +50°C	12 305	18¼ 464

## Model 85208

Same as Model 85209 except 220 VAC, 50-60 Hz power.



## Model 85500 System Sentry II

The ultimate automated lubrication system controller/monitor now features greater monitoring accuracy with less sensitivity to lubricant flow rates, feed line length, or bearing back pressure. System Sentry II is always on the job, making sure that every lube point is lubricated when it's supposed to be.

- Solid-state controller with LCD status display and 16-button keypad for system programming
- Controls up to two pumps with as many as two lube zones per pump
- Fully programmable monitoring and alarm functions
- Be set up to monitor every lube point for lubricant flow during each lubrication event
- Easy to understand prompts reported by simple English language messages in real time

**Some functions require optional accessories. See chart on page 38.** Use a maximum of 48 sensors and three accessory Sensor Boards (order separately— 16 sensors per board) to monitor lube points. For more than 48 sensors, use Model 85510 Satellite plus additional Sensor Boards for a maximum of 1536 lube points.

Lube Cycle				Max. Count Rate*	Pumping Time Before Alarm		Net Wt.
Timer Mode Off-Time		Counter Mode Off-Counts			Min.	Max.	
Min.	Max.	Min.	Max.				
1 Second	9,900 Minutes	1 Count	99,000 Counts	30/Sec. @ 50% Duty Cycle	1 Second	99 Minutes	18 lbs. 8.1 kg

\* Minimum duration of count signal is 33 milliseconds.

Power Requirements (less load)		Pump, Solenoid, or Alarm Capacity	Ambient Temperature Range	Rating	Enclosure		
Voltage	Current				Dimensions-in. / mm		
					Height	Width	Depth
120 VAC, 50/60 Hz	250 MA*	360 VA	32° to 122°F 0° to +50° C	NEMA 12	11 241	14 227	4 7/8 105
230 VAC, 50/60 HZ	125 MA*						
24 VDC	600 MA*	5 Amps					

**Note:** Model 85500 is CSA/NRTL approved.

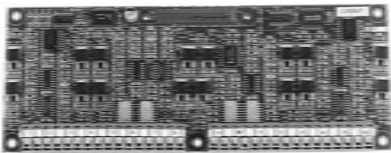
\* No external load, no sensors.



### Model 247333 Pressure Transducer

Pressure Transducer signals actual system pressure via LCD display of System Sentry II. Comes with 72 inch (1.8m) shielded 24-gauge connecting wire. Maximum length of wire between transducer and monitor is 30 (9.1m) feet.

Range	Accuracy	Proof	Pressure Connection	Ambient Temp.	Input	Voltage Output	Offset	Enclosure
0 to 4000 psi 276 bar	±1%	7500 psig 517 bar	¼" NPT Male Thread	-20° to 180° F -29° to 82° C	10 to 30 VDC	1-6 VDC	1 VDC	NEMA 4X Rating 300 Series Stainless Steel



### Model 250365 Sensor Board

Plug-in accessory board used with Model 85500 that allows the attachment of up to 16 lube flow sensors. (Model 85500 comes without boards installed and can hold up to a total of three.)

### Sensor Assemblies

Sensor assemblies consist of a check body and lube sensor with attached 30' cable. Cables are epoxy potted into the sensors for a watertight seal. Sensors have a 3/8" pipe thread for conduit connection and a Viton® O-ring seal. Check bodies terminate in a 1/8" NPTF male thread for attachment to a bearing or other lubricant inlet. Maximum working pressure 6,000 psi (414 bar). Maximum wire run from sensor to monitor is 500 feet (152m).



Model	Description	Construction	Lubricant Temp. Range	Min. Flow Per Event	Inlet/Outlet	Min. Interval Between Lube Flow Event
250400	Straight Sensor Assembly	Brass Sensor & Plated Steel Check Body	32° to 145° F 0° to 63° C	.004 cu.in./ .066 cc @ 32°F / 0° C to 125°F / 52°C	1/8"	30 Seconds
250490	90° Sensor Assembly					
250500	Straight Sensor Assembly	316 Stainless Steel	.008 in³ / .131cc @ 126°F / 53°C to 145°F / 63°C			
250590	90° Sensor Assembly	Sensor & Check Body				

### Model 243100 Sensor Wire

100 foot (30.5 meters) coil of two conductor 22-gauge wire for connecting sensors to monitor. Maximum length of wire between sensor and monitor is 500 feet (152 meters).



### Use This Guide to Select Accessories for Model 8550 System Sentry II

Function	Pressure Switch #69630	Pressure Transducer #247333	Sensor Board #250365	Sensors <i>Note 2</i>	Sensor Wire #243100 (100') <i>Note 3</i>
Lube Controller 1 Pump, 1 Zone <i>Note 1</i>	Optional 1	Optional 1	—	—	—
Lube Controller, 1 Pump, 1 per Zone Up to 3 Zones	Required Required 1 (3 Max.)	—	—	—	—
Lube Controller, 2 Pumps, 1 Zone Per Pump	No	Required 2 (1 per Pump)	—	—	—
Lube Controller, 2 Pumps, Up to 2 Zones Per Pump	Required 1 per Zone (4 Max.)	Required 2 (1 per Pump)	—	—	—
Lube Point Monitoring ≤ 48 Points	—	—	Required 1 per each 16 Sensors	Required 1 per Lube Point	Required Quantity As Needed
Lube Point Monitoring > 48 ≤ 1536 Points	—	—	Required 1 per each 16 Sensors	Required 1 per Lube Point	Required Quantity As Needed

**Note 1:** Controller may be operated without a pressure switch or pressure transducer but will not be able to monitor and alarm for lube system pressure failures.

**Note 2:** Sensors include 30' (9.1m) cable pigtail. Select brass/plated steel or stainless steel sensors in straight or 90° configuration as required.

**Note 3:** Maximum distance between monitor and sensor is 500' (152 meters).

**Note 4:** Satellite monitor includes one 250365 sensor board and accepts two additional boards (optional) for connection of up to 48 sensors per satellite. Maximum 31 satellites per system.



## Electric Solenoid-Operated Air Valves

Model	Type	Electrical Characteristics			Air Inlet/Outlet	Ambient Temperature Range	Cv Factor	Max. Pressure psi / bar	Conduit Connection
		Power Requirements	Inrush Current Amps	Holding Current Amps					
350244	4-Way	110 VAC, 50 Hz 120 VAC, 60 Hz 8.4 VA	.11	.07	¼" NPT(F)	0° to 120°F -18° to 49°C	1.2	150 10.3	½" NPS(F)
350245		220 VAC, 50 Hz 240 VAC, 60 Hz 8.4 VA	.055	.035					
350241	3-Way	110 VAC, 50 Hz 120 VAC, 60 Hz 8.4 VA	.11	.07	¼" NPT(F)	0° to 140°F -18° to 60°C	.18	150 10.3	N/A
350242		220 VAC, 50 Hz 240 VAC, 60 Hz 8.4 VA	.055	.035					
350282		12 VDC 6 Watts	N/A	N/A					
350283		24 VDC 6 Watts	N/A	N/A	½" NPT(F)				N/A
68586	2-Way	120V, 60 Hz 12 VA	.2	.1	¾" NPT(F)		2.4		½" NPT(F)
274398	3-Way	24 VDC 8.5 Watts	N/A	N/A	¼" NPT(F)		.5		N/A
244727	3-Way	110 VAC, 50 Hz 120 VAC, 60 Hz 11 VA	.12	.09	¾" NPT(F)	0° to 120°F -18° to 49°C	4.4		½" NPT(F)



## Model 249605 Sealed Cycle Timer

Sealed timer attaches to Lincoln 16:1 Hydraulic Pumps and generates timed pulse signal to control pump reciprocating cycle rate.

Power Requirement	Cycle Rate/Minute	
	Min.	Max.
24 VDC	6	60



## Model 84360 System Alarm

System Alarm includes Model 84297 Reset Timer and Model 69630 Pressure Switch. Signals alarm if system pressure is not detected within preset intervals.

Power Requirement (less load)	Count Down Interval Before Alarm Signal		Reset Timer Enclosure	Lube Connection	Increasing Pressure Switch Adjustment psi / bar	
	Min.	Max.			Min.	Max.
115 VAC, 60 Hz 7.5 VA	9 Min.	5 Hours	NEMA 1	¼" NPT(F)	280 / 19	3000 / 207



### End-of-Line Monitors

Designed to detect system pressure utilizing normally open or normally closed switch.

Model	Switch Rating	Operating Range - psig / bar		Lube Inlet	Dimensions - in / mm		Conduit Connection
		Min.	Max.		Height	Width	
83898	125, 250	1200 / 83	2500 / 172	¼"	5¾ / 146	2¼ / 57	½" NPSM
83899	480 VAC, 15 Amps	700 / 48	1150 / 79				



### Model 83354 Signal Monitor

Designed to provide visual and audible indication of system operation and failure. Utilizes signal from system controller. Includes Model 69606 Alarm Horn mounted on enclosure door.

Power Requirement	Indicator Lamps			Audible Alarm	Dimensions - in / mm		
	Power On	Lube System On	System Failure		Height	Width	Depth
115 VAC 50/60 Hz 35 VA	Green	Amber	Red	69606 Horn (included)	10 254	8 203	6 152

**Note:** Lamps and horn are U.L. listed.

### Model 69606 Alarm Horn

Use with controllers or System Alarm Model 84360 for audible failure signal.

Model	Power Requirement
69606	120 VAC, 50/60 Hz, 15 VA

**Note:** U.L. listed.



### Model 69630 Pressure Switch

Senses supply line pressure rise/fall to signal system operation to controller or system alarm.

Type	Switch Capacity		Adjustable Range - psig / bar				Connections	
	AC	DC	Decreasing		Increasing		Lube	Electrical
			Min.	Max.	Min.	Max.		
Single Contact	10 Amps at 125, 250 or 480 VDC	15 Amps @ 6 VDC 5 Amps @ 24 VDC .03 Amps @ 250 VDC	250 17	2775 191	280 19	3000 207	¼" NPT(F)	⅞" hole for ½" conduit connector

**Note:** Pressure switch has a NEMA 3 housing and UL listed switching elements.