

# Lube Sentinel II Monitor™

## DESCRIPTION

The Lube Sentinel II is a field configurable micro-processor based monitor, capable of detecting flow variations in any Series-Progressive type lubrication system regardless of manufacturer. This system-dedicated device can compute and monitor precise lubrication rates in increments of 0.001 in<sup>3</sup>, to a minimum of 0.005 in<sup>3</sup> per lube cycle.

Designed for versatility, the Lube Sentinel II provides both single and dual zone monitoring capabilities in one unit. The Lube Sentinel II is capable of monitoring one lubrication system or two dependent or independent lubrication systems.

Programming is simple with the easy-to-use, 3-button design. No computer knowledge or special training is necessary. No jumper wires or external equipment is required. Programming involves inputting parameters and selecting options as prompted by the LCD (Liquid Crystal Display).

Safety and convenience can be enhanced by specifying the exclusive Safety Set option, which allows the operator to program, read and reset without opening the enclosure.

Zones may be interlocked to alarm on first fault and lock out the other zone, or separated to independently alarm whichever zone faults, or they may be programmed not to alarm at all. Activated zones may be temporarily bypassed remotely.

The Lube Sentinel II Monitor consists of a power module and a logic module packaged in a JIC or explosion-proof enclosure.

## OPTIONS

**JIC Enclosure (NEMA 12)** - An oil-tight, dust-proof JIC sheet metal enclosure with a window on a hinged door is offered as a standard option for general industrial applications.

**Explosion-Proof Enclosure (Class 1 & 2 Group B/C/D/E/F/G, Division 1; NEMA 4-7)** - A Listed Cast Aluminum Explosion-Proof Enclosure with a 3" diameter glass window is offered as a standard option for applications in hazardous environments.

**Retrofit Packages** - The Lube Sentinel II Monitor is available without an enclosure, but with appropriate mounting hardware for use in pre-existing JIC, and Group C & D enclosures.

**Safety Set Kit** - The Safety Set includes a magnetic-sensitive switch-bank that plugs into the face of the monitor, allowing operation of the monitor without removing the cover. Three switches replicate the function buttons of the monitor and are activated via a magnetic DataWand. The switch-bank can reset, select and program, and can be permanently field modified to reset and select only.

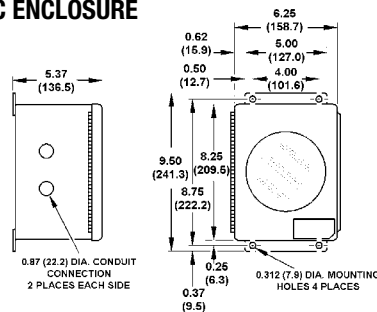


## DESIGN FEATURES

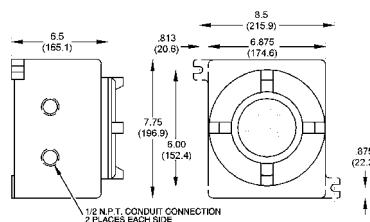
- Same unit is configurable to monitor one or two zones.
- Unit monitors net lube flow to the machine.
- Unit recognizes both low-lube and high-lube faults.
- Unit displays "per 24 hour lube rates" in pints, gallons, milliliters, liters, ounces and counts.
- Unit displays instantaneous (last cycle) rate, average (last 10 cycles) rate and cumulative lube total - updated with every cycle.
- Fault times and rates are automatically recalculated if displayed unit of measure is altered.
- Fault times and rates can be automatically proportioned as machine speeds change using a tach pulse sensor (non-provided).
- Fault enunciation can be delayed to avoid nuisance alarms shutdowns.
- Faults can be reset and zones can be bypassed remotely.
- Unit is suitable for use in fast cycling applications.
- Unit includes highly reliable electronic circuitry, packaged to resist the influence of electrical noise.
- UL/CSA Certification (per Industrial Control Standards) is pending.
- Every Lube Sentinel II Monitor™ includes:
  - A reflective liquid crystal display with a wide-angle viewing area, suitable for application over a broad temperature range (-4°F to +158°F, (-20°C to +70°C))
  - A buffered RS-232 communications port and a pulse output interface
  - Multiple status lights for each zone
  - An SPDT power monitor relay
  - Programmable fault contacts, one DPDT per zone, to "pick" or "release" when a fault is detected.

## DIMENSIONS Inches (mm)

### JIC ENCLOSURE



### EXPLOSION-PROOF ENCLOSURE



## PRINCIPLE OF OPERATION

The operation of the Lube Sentinel II is as follows: Cycling action of the Divider Valve causes the Proximity Switch, attached to one of the valve sections, to open and close its contacts one time for each full cycle. This cycling action will speed up or slow down depending on the amount of lubricant passing through the system.

A pulse is generated each time the Proximity Switch is tripped by each full cycle of the Divider Valve. The frequency of pulses is converted to a flow rate by the micro-processor and checked against a pre-set minimum and/or maximum flow rate. As long as the flow rate falls between the pre-set minimum and maximum, the green LED will indicate normal operation. If the flow rate falls beyond the pre-sets, the unit will fault. If the unit faults, the associated relay will change state. This relay can be used to sound an alarm and/or automatically shut down the equipment. The unit will display "H" for high lube or "L" for low lube, and the red LED will indicate a fault.

The pre-set minimum and/or maximum flow rates are configured into the unit by the operator. If the unit is satisfied that proper lubrication has been maintained, the green LED will indicate normal operation, and the unit will display the instantaneous, average or total lubricant usage. This data is updated with each new cycle of the Divider Valve.

## SPECIFICATIONS

<b>Input Power Requirements</b>	
115 VAC	100 mA
230 VAC	50 mA
24-30 VDC	200 mA
Fuses FU-1 & FU-2	1/4 x 1 in - 0.5 amp, 250 VAC, medium lag (buss # AGC, or equivalent; 5 x 20 mm - 0.5 amp, 250 VAC, medium lag (buss # GMA, or equivalent; Uses Medium Lag Fuses Only. Do Not Use Fast Acting Fuses
Proximity Switch Pulse Inputs	24 VDC/12 mA each
Tach Sensor or Pulse Input	24 VDC/12 mA
Zone Bypass and Alarm Inputs	24 VDC/12 mA each
<b>Relay Outputs (Zone Fault &amp; Power Failure)</b>	
Rated Load	0.5 A @ 125 VAC, 1 A @ 30 VDC
Max Carry Current	2A
Max Operating Voltage	250 VAC, 220 VDC
Max Switching Capacity	62.5 VA, 60W
Min Permissible Load	10 µA, 10 mVDC
Current Consumption	70 mA @ 115 VAC, 150 mA @ 24 VDC, 40 mA @ 230 VAC
RS232 Communications Port Adapter	(Inter connection wire supplied by others); Waldom - Molex Housing # 22-01-2067; Waldom - Molex Pins # 08-50-0114
Max Pulse Rate	300 per min (150 divider cpm) @ 50% duty cycle
Max Cycle Time	10.9 min
Ambient/Storage Temperature Range (LCD Limited)	-4°F to 158°F (-20°C to 70°C)
Net Weight (approx)	JIC - 8.4 lbs; Explosion-Proof - 18.3 lbs

## ORDERING INFORMATION

Description	Part No.	Old Part No.
<b>Lube Sentinel II in Industrial Enclosure</b>		
JIC Enclosure, 115 VAC	562870	162-300-690
JIC Enclosure, 230 VAC	—	162-300-691
<b>*Lube Sentinel II in Explosion-Proof Enclosure</b>		
Class I, Groups B-D, Division 1 Class II, Groups E-G, Division 1, 115 VAC	562871	162-300-700
Class I, Groups B-D, Division 1 Class II, Groups E-G, Division 1, 230 VAC	Dis	162-300-701
<b>**Retrofit Packages, Include Lube Sentinel II</b>		
Pre-existing JIC Enclosure, 115 VAC	563936	560-002-720
Pre-existing JIC Enclosure, 230 VAC	—	560-002-967
Pre-existing Class I, Group C & D, 115 VAC	563937	560-002-730
Pre-existing Class I, Group C & D, 230 VAC	—	560-002-968
Logic Module w/Cord, 115 VAC/24 VDC	558045	572-144-380
Power Module, 115 VAC/24 VDC	558046	572-144-390
<b>Safety Set</b>	563927	560-002-011
DataWand Only	563932	560-002-580
<b>Power Module, 230 VAC/ 24 VDC</b>	—	572-144-391

\*Enclosure is tagged UL and CSA listed and Cenelec approved.

\*\*Retrofit packages do not upgrade or alter the classification of the original Sentinel enclosure to which they are installed.

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

## Contact us today!

To receive product information or talk with a Graco representative, call 800-533-9655 or visit us online at [www.graco.com](http://www.graco.com).

