

# Lake Monitors Flow Rate Alarms

FOR 1/4" - 2" PIPE SIZES

## STYLE M & N

### FIELD ADJUSTABLE ALARM SETTING

Only an allen wrench is required to change the flow alarm setting.

### WEATHER-TIGHT CONSTRUCTION

Rugged cast aluminum NEMA type 4X enclosure allows installation in outdoor applications and in environments where liquid tight seals are required.

### SIMPLE ON/OFF LOGIC

Positive alarm points using 10 A., dry-contact, SPDT switches, reduce the complexity found in standard rotameter OFF/ON/OFF circuits.

### PRE-WIRED WITH CABLE DISCONNECT

The standard Hirschmann interconnection provides easy installation and maintenance of the FLOW ALARM and the system it is a part of.

### GOOD VISCOSITY STABILITY

A sharp-edged stainless steel orifice provides excellent measurement stability for viscosities from 0-500 SSU.



Utilized in applications such as mobile hydraulic equipment and industrial process control, ensures sufficient flows of coolants and lubricants.

### UNRESTRICTED MOUNTING

Allows the designer to install the monitor in any orientation - horizontal, vertical or inverted.

### ECONOMICAL PROTECTION

This monitor rapidly pays for itself as it "sounds the alarm" on incorrect pneumatic, lubrication or cooling volumes, protecting expensive equipment and reducing downtime.

### QUALITY ASSURANCE

Can be an integral part of a quality control system, yielding consistent system operation.

## ENGINEERING SPECIFICATION

### THE IN-LINE FLOW MONITOR/ALARM SHALL:

- Have field adjustable, dry-contact, alarm setting(s).
- Use the variable annular orifice technique with compression spring recoil.
- Not require inlet or outlet straight plumbing, or require vertical pipe mounting.
- Have a measuring accuracy of  $\pm 2.5\%$  of full scale in the center third of the measuring range, and  $\pm 4\%$  in upper and lower thirds.
- Have a maximum working pressure rating of 3500 or 6000 PSIG for liquids.
- Have a maximum working pressure rating of 600 or 1000 PSIG for gasses.
- Have a stainless steel sharp-edged orifice.
- Have a weather-tight NEMA type 4X external construction.
- Be Lake Monitors No. M\* \_\_\_ - \_\_\_ - \_\_\_ for single alarm applications, or N \_\_\_ - \_\_\_ - \_\_\_ for dual alarm applications.

\* For units which are to switch in the upper 2/3 of the scale, add -A247 to end of M-style part number.

# Flow Rate Alarms

## TYPICAL PRESSURE DIFFERENTIALS

For specific differential graphs, refer to Lake data sheet PDDS-404.

### MATERIALS OF CONSTRUCTION (WETTED COMPONENTS)

	ALUMINUM	BRASS	STAINLESS STEEL
High-pressure casing, end ports and tapered shaft	Aluminum	Brass	#303 Stainless Steel
Seals	Buna-N® (STD), EPR, FKM or FFKM	Buna-N® (STD), EPR, FKM or FFKM	FKM with PTFE backup (STD), Buna-N®, EPR or FFKM
Transfer Magnet	PTFE coated Alnico	PTFE coated Alnico	PTFE coated Alnico
Floating Orifice Disk	Stainless Steel	Stainless Steel	Stainless Steel
All other internal parts	Stainless Steel	Stainless Steel	Stainless Steel

Buna-N is a registered trademark of Chemische Werke Huls

### MATERIALS OF CONSTRUCTION (NON-WETTED COMPONENTS)

	ALUMINUM	BRASS	STAINLESS STEEL
Enclosure & Cover	Aluminum	Aluminum	Aluminum
Seals	Buna-N®	Buna-N®	Buna-N®
Window	Pyrex®	Pyrex®	Pyrex®
Din Connector	Polyamide	Polyamide	Polyamide

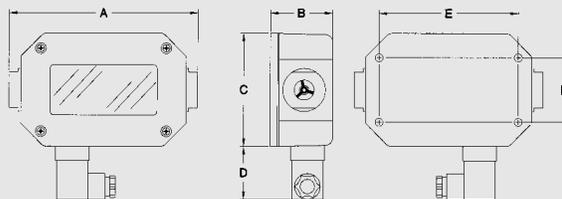
Pyrex is a registered trademark of Corning Incorporated

### PERFORMANCE

Measuring accuracy:	±2.5% of full-scale in the center third of the measuring range; ±4% in upper and lower thirds
Repeatability:	±1% of full-scale
Flow measuring range:	0.05-150 GPM (0.2-560 LPM); 1.5-1300, SCFM (0.75-610 SLPS)
Maximum operating pressure:	aluminum and brass monitors: 3500 PSIG (240 Bar) stainless steel monitors: 6000 PSIG (410 Bar)
Maximum operating temperature:	media: 170°F (77°C), ambient: 170°F (77°C)
Pressure differential:	See graphs on the right for typical pressure differentials.
Standard calibration fluids:	Oil monitors: DTE 25® @ 110°F (43°C), 0.873 sg Water monitors: tap water @ 70°F (21°C), 1.0 sg Air monitors: air @ 70°F (21°C), 1.0 sg and 100 PSIG (6.8 Bar)
Enclosure:	NEMA type 4X (UL Approved)
Alarm switch dead-band:	4% of full scale
Alarm switch contacts:	SPDT (dry contact), UL/CSA rating: 10 amps and 1/4 hp, 125 or 250 VAC. 1/2 amp, 125 VDC; 1/4 amp, 250 VDC; 3 amps, 125 VAC "L" (lamp load)
Filtration requirements:	74 micron filter or 200 mesh screen minimum

DTE 25 is a registered trademark of Exxon Mobil

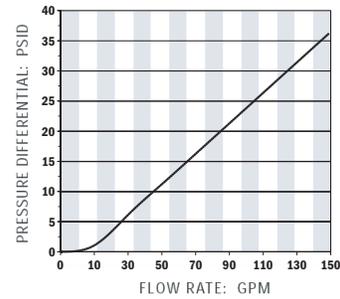
### MECHANICAL SIZE CODE



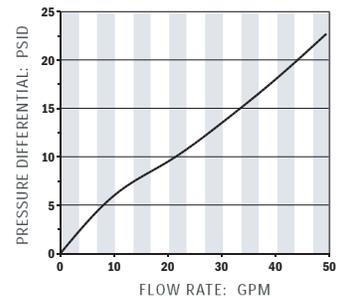
DIM	SERIES 3	SERIES 4	SERIES 5	SERIES 5
A	6-9/16" (167mm)	7-5/32" (182mm)	10-1/8" (258mm)	12-5/8" (322mm)
B	2-3/16" (56mm)	2-15/16" (75mm)	3-13/16" (97mm)	3-13/16" (97mm)
C	4" (101mm)	4-1/2" (114mm)	5-5/16" (135 mm)	5-5/16" (135mm)
D	1-7/8" (47mm)	1-7/8" (47mm)	1-7/8" (47mm)	1-7/8" (47mm)
E	4-7/8" (128mm)	5" (127mm)	6-3/4" (172mm)	6-3/4" (172mm)
F	2-1/4" (57mm)	2-7/8" (73mm)	3-3/4" (95mm)	3-3/4" (95mm)
Port Sizes	NPTF: 1/4", 3/8", 1/2" SAE: #6, #8, #10 BSP: 3/8", 1/2"	NPTF: 3/4", 1" SAE: #12, #16 BSP: 3/4", 1"	NPTF: 1-1/4", 1-1/2" SAE: #20, #24 BSP: 1-1/4", 1-1/2"	NPTF: 2" SAE: #32 BSP: 2"

Note: Consult factory for SAE brass monitor requirements.

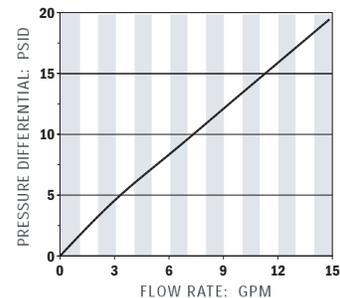
### SERIES 5 MONITORS 1-1/4" - 2"



### SERIES 4 MONITORS 3/4" - 1"



### SERIES 3 MONITORS 1/4" - 1/2"



[www.lakemonitors.com](http://www.lakemonitors.com)

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