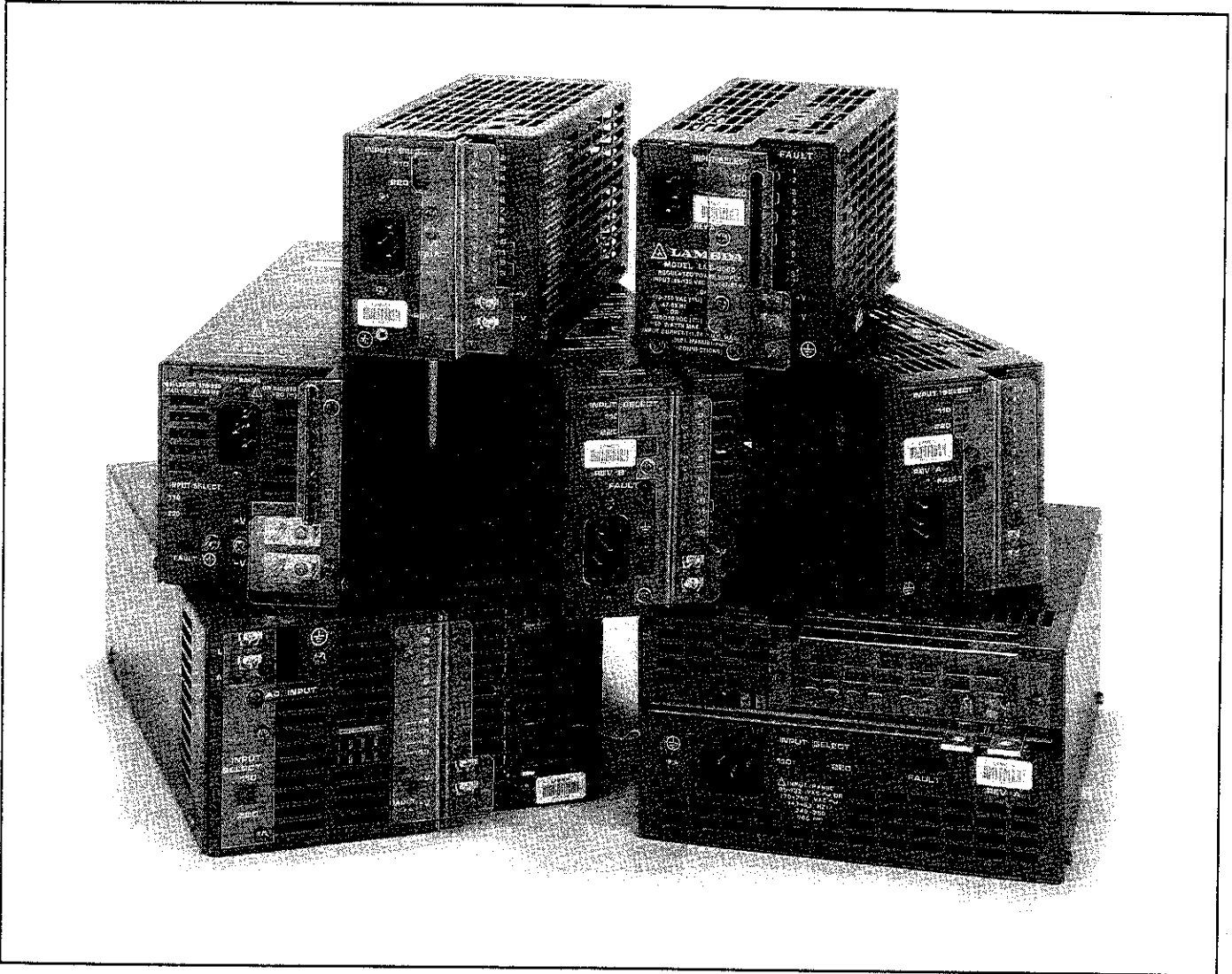


PART IA—AC-TO-DC SWITCHING POWER SUPPLIES

LAMBDA'S INDUSTRIAL LMS SERIES



PROGRAMMABLE POWER FOR CONSTANT VOLTAGE/CONSTANT CURRENT APPLICATIONS

The new LMS Series remotely programmable power supplies provide modular solutions for wide range voltage applications from 0-300VDC. Equipment for test applications require wide range outputs to increase versatility and allow for changing test requirements. Deliverable test equipment, designed for use with a specific system can now have increased flexibility and reduce the cost of subsequent systems. In-house test equipment using the LMS Series can be designed for a wide range of applications, to allow versatility and increased utilization of capital equipment expenditures.

- Available in 39 models, up to 300V, up to 100A.
- Adjustable overvoltage protection.
- Constant voltage/constant current operation.
- Overvoltage/overtemperature indicators.
- Compatible with Lambda's ATE Series Programmable Power Systems.
- EMI filtering to meet FCC 20780 Class A and VDE 0871 Class A.
- Ask for new application note for remote programming of LMS Series.
- Universal operation of 110/220VAC.
- Worldwide safety agency approvals.
- 3000VAC input to output isolation.
- Remote on/off (TTL voltage compatible signal), remote sense and remote program capabilities (current and voltage).
- Input surge protection per IEEE-587 Class C for branch circuits and outlets.
- Grade 1 design.

PART IA — AC-TO-DC SWITCHING POWER SUPPLIES

LAMBDA'S INDUSTRIAL LMS SERIES

DC OUTPUT

Voltage range shown in tables.

REGULATED VOLTAGE CONSTANT

regulation, line	0.05% for line variations from 85 to 132VAC or 170 to 265VAC. 0.01% + 1mV for LMS-3000.
regulation, load	0.05% for load variations from 0 to full load. 0.01% + 1mV on LMS-3000 Series.
remote programming resistance	Customer adjustable from 200Ω/volt to 1000Ω/volt. 200Ω/volt on LMS-3008, LMS-3060. 400Ω/volt on LMS-3120. 1000Ω/volt on LMS-4300, LMS-5300, LMS-6300 AND LMS-9300.
remote programming voltage	volt per volt or 0-5 volt signal for zero to full voltage out, customer selectable.
ripple and noise (20MHz Bandwidth)	5mV RMS, 35mV pk-pk on 8V and 18V models. 10mV RMS, 75mV pk-pk on 40V and 60V models. 20mV RMS, 150mV pk-pk on 120V and 300V models. 1mV RMS, 5mV pk-pk on all LMS-3000 models. 35mV RMS, 300mV pk-pk on LMS-4300 and LMS-5300.
temperature coefficient	0.03%/°C. 0.01%/°C on LMS-3000 Series.

CONSTANT CURRENT

(Current regulated line and load) Automatic Crossover.	
current range	5% to full load current. 1% for LMS-3000 models.
regulation, line	0.3% of I_o (max) for line variations from 85 to 132VAC or 170 to 265VAC. 2.5mA or 0.1% (whichever is greater) on LMS-3000. 2.5mA or 0.3% (whichever is greater) on LMS-4000 models. 2.5mA on LMS-5300.
regulation, load	0.3% of I_o (max) for load variations from short circuit to rated DC voltage. 2.5mA or 1% (whichever is greater) on LMS-3000 models. 2.5mA or 0.3% (whichever is greater) on LMS-4000 models. 2.5mA on LMS-5300.
remote programming current	0-5V signal for zero to I_o (max).
constant ripple	1.0% I_o (max) RMS.

AC INPUT

line	85 to 132VAC or 170 to 265VAC, user selectable. 47-440 Hz.
power	LMS-3000 Series: 62 watts max. LMS-4000 Series: 79 watts max. LMS-5000 Series: 135 watts max. LMS-6000 Series: 245 watts max. LMS-7000 Series: 450 watts max. LMS-8000 Series: 620 watts max. LMS-9000 Series: 1100 watts max.
input current	LMS-3000 Series: 1.2A RMS max. LMS-4000 Series: 1.35A RMS max. LMS-5000 Series: 2.7A RMS max. LMS-6000 Series: 4.0A RMS max. LMS-7000 Series: 7.5A RMS max. LMS-8000 Series: 10.0A RMS max. LMS-9000 Series: 17.5A RMS max.

EFFICIENCY

Model	Minimum Efficiency at Max P_{out}
LMS-3000	45%
LMS-4008, 4018	55%
LMS-4040, 4060, 4120, 4300, 5008, 5018	60%
LMS-5040, 5060, 5120, 5300, 6008, 6018, 6040, 6060, 6120, 6300	65%
LMS-8008, 8018	68%
LMS-7008	70%
LMS-9008	72.5%
LMS-8040, 8060, 8120	73%
LMS-7040, 7060, 7120, 9018, 9040	75%
LMS-9060, 9120, 9300	77.5%

OPERATING TEMPERATURE RANGE

Continuous duty from 0°C to 71°C with appropriate derating from 40°C to 71°C (0°C to 60°C for LMS-3000, 4000, 5000 Series).

STORAGE TEMPERATURE RANGE

-55°C to +85°C.

OVERLOAD PROTECTION THERMAL

Internal temperature sensing circuit protects unit from excessive ambient temperature on the LMS-3000, 4000, 5000 and 7000 Series. The LMS-6000, 8000 and 9000 Series are protected from inadequate air velocity by an internal airflow sensing circuit. When shutdown occurs, a front panel LED indicator will turn on. AC power must be momentarily removed from the unit after thermal shutdown in order to restore operation.

ELECTRICAL

External overload protection -- adjustable, automatic electronic current-limiting circuit limits output current to preset value. Current-limiting setability to 100% of rated current via an externally accessible potentiometer. An internal peak inverter current limit circuit protects the power supply during load transients.

OVERVOLTAGE PROTECTION

Built-in, adjustable overvoltage protection is standard on all sets. When preset voltage is exceeded, the overvoltage protector removes the inverter drive. AC power must be momentarily removed from unit after overvoltage shutdown in order to restore operation.

Overvoltage Protection Adjustable Ranges

Model	Vov(Min)	Vov(Max)
LMS-3008, 4008, 5008, 6008, 7008, 8008, 9008	4V	11V
LMS-3018, 4018, 5018, 6018, 7018, 8018, 9018	4V	24V
LMS-3040, 4040, 5040, 6040, 7040, 8040, 9040	8V	50V
LMS-3060, 4060, 5060, 6060, 7060, 8060, 9060	8V	70V
LMS-3120, 4120, 5120, 6120, 7120, 8120, 9120	20V	130V
LMS-4300, 5300	200V	330V
LMS-6300, 9300	55V	330V

IN-RUSH CURRENT LIMITING

Limits in-rush current at turn-on to 20A when connected for 110VAC input and 40A when connected for 220VAC input. 90A on LMS-3000 Series. 30A on LMS-7000.

COOLING

The LMS-3000, 4000 and 5000 Series are convection cooled. The LMS-6000, LMS-7000, LMS-8000 and LMS-9000 are fan cooled. Leave adequate clearance for air intakes and exhausts.

CONTROLS

DC OUTPUT CONTROLS

Simple screwdriver adjustment over the entire voltage range.

EMI

All units meet FCC 20780 Class A and VDE 0871 Class A.

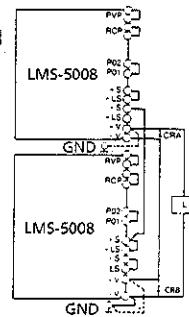
INPUT AND OUTPUT CONNECTIONS

Input connections via an IEC power line connector. DC output connections via heavy duty, PC board mounted barrier strips (bus bars on LMS-9008 and LMS-9018 units). (AC mating connector available, consult factory.)

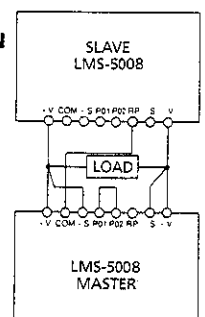
SERIES/PARALLEL OPERATION

Due to the nature of test applications, expandability is a critical design parameter. The LMS Series allows series or parallel operation with like units in order to address the growing power or voltage requirements of test applications.

SERIES OPERATION



PARALLEL OPERATION



NOTE: * MAKE ONLY ONE GROUND CONNECTION FOR SERIES COMBINATION. TO CHANGE GROUND AS SHOWN, REMOVE JUMPER FROM -V TO GND AND RECONNECT AS DESIRED.

LED STATUS INDICATOR

Overvoltage or overtemperature indicator on rear panel.

REMOTE SENSING

Provision is made for remote sensing to eliminate effect of power output lead resistance on DC regulation.

REMOTE ON/OFF

A TTL low or short enables the unit. A TTL high or open circuit turns the unit off.

PHYSICAL DATA

Package Model	Lbs. Net	Lbs. Ship	Size Inches
LMS-3000	6	7	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8
LMS-4000	4.5	5.5	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9
LMS-5000	7	8	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10
LMS-6000	7.25	8	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11
LMS-7000	8.6	9.3	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13
LMS-8000	12.2	16.7	4 ⁹ / ₃₂ × 8 × 9.5
LMS-9000	14.5	19	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈

ACCESSORIES

MATE, Functional Talk-Listen and GPIB compatible. Line cords available.

GUARANTEED FOR 3 YEARS

3 year guarantee includes labor as well as parts. Guarantee applies to operation at full published specifications at end of 3 years.

SAFETY AGENCY APPROVALS

The LMS-3000, 4000, 5000 and 6000 are UL recognized, CSA certified and TUV licensed. The LMS-7000, 8000 and 9000 are under evaluation.

PART IA—AC-TO-DC SWITCHING POWER SUPPLIES

INDUSTRIAL SWITCHING SELECTOR GUIDE

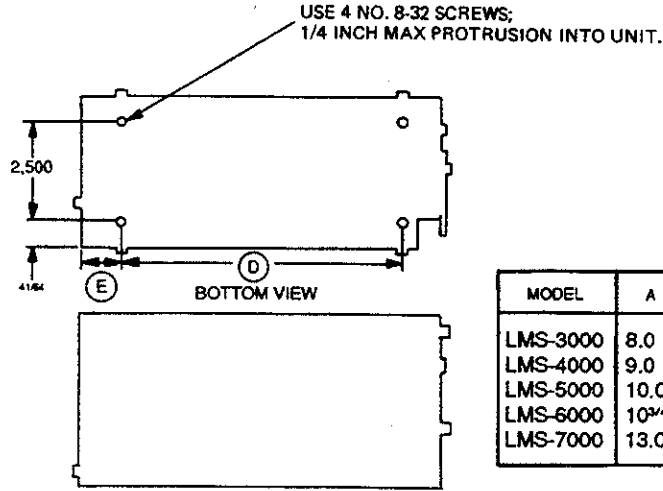
LMS Series. Wide Range Input. Single Output.

40°C	MAX CURRENT AT OPERATING TEMPERATURE OF			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	LAMBDA'S CHOICE (Δ)*	QTY. 1	PRICE QTY. 10	QTY. 25	MODEL
	50°C	60°C	71°C								
0-8 VOLTS											
3.50	2.90	1.75	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8	Δ	\$ 274	\$ 260	\$ 255	LMS-3008
5.00	4.30	3.20	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	406	385	375	LMS-4008
10.00	7.90	6.30	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	481	458	442	LMS-5008
20.00	20.00	16.50	13.5	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	645	614	593	LMS-6008
35.00	35.00	30.00	25.0	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13	Δ	786	749	723	LMS-7008
50.00	47.00	41.00	33.7	39	159	4 ⁹ / ₃₂ × 8 × 9 ¹ / ₂	Δ	931	884	854	LMS-8008
100.00	90.00	78.00	57.0	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1224	1165	1124	LMS-9008
0-18 VOLTS											
1.60	1.30	0.80	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8	Δ	274	260	255	LMS-3018
2.40	2.10	1.50	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	406	385	375	LMS-4018
4.50	3.50	2.80	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	481	458	442	LMS-5018
9.00	9.00	8.20	6.6	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	645	614	593	LMS-6018
16.00	16.00	13.50	11.0	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13	Δ	786	749	723	LMS-7018
24.00	22.20	20.50	18.0	39	159	4 ⁹ / ₃₂ × 8 × 9 ¹ / ₂	Δ	931	884	854	LMS-8018
45.00	40.00	33.00	25.0	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1224	1165	1124	LMS-9018
0-40 VOLTS											
0.70	0.60	0.35	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8	Δ	274	260	255	LMS-3040
1.00	1.00	0.85	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	406	385	375	LMS-4040
2.00	1.60	1.30	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	481	458	442	LMS-5040
4.00	4.00	3.80	3.1	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	645	614	593	LMS-6040
7.00	7.00	6.00	5.0	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13	Δ	786	749	723	LMS-7040
10.00	9.80	9.20	8.0	39	159	4 ⁹ / ₃₂ × 8 × 9 ¹ / ₂	Δ	931	884	854	LMS-8040
20.00	18.00	15.00	11.0	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1224	1165	1124	LMS-9040
0-60 VOLTS											
0.50	0.42	0.25	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8	Δ	274	260	255	LMS-3060
0.70	0.70	0.60	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	406	385	375	LMS-4060
1.40	1.10	0.90	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	481	458	442	LMS-5060
2.80	2.80	2.60	2.1	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	645	614	593	LMS-6060
4.80	4.80	4.10	3.4	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13	Δ	786	749	723	LMS-7060
7.00	6.60	6.10	5.3	39	159	4 ⁹ / ₃₂ × 8 × 9 ¹ / ₂	Δ	931	884	854	LMS-8060
14.00	12.00	10.00	8.0	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1224	1165	1124	LMS-9060
0-120 VOLTS											
0.25	0.21	0.13	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 8	Δ	274	260	255	LMS-3120
0.36	0.36	0.30	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	406	385	375	LMS-4120
0.70	0.55	0.45	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	481	458	442	LMS-5120
1.40	1.40	1.30	1.0	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	645	614	593	LMS-6120
2.40	2.40	2.10	1.7	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 13	Δ	786	749	723	LMS-7120
3.50	3.40	3.20	2.7	39	159	4 ⁹ / ₃₂ × 8 × 9 ¹ / ₂	Δ	931	884	854	LMS-8120
7.00	6.00	5.00	4.0	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1224	1165	1124	LMS-9120
0-300 VOLTS											
0.14	0.12	0.11	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 9	Δ	468	446	434	LMS-4300
0.28	0.22	0.18	—	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 10	Δ	551	524	507	LMS-5300
0.56	0.56	0.52	0.40	39	159	4 ⁹ / ₃₂ × 3 ¹³ / ₁₆ × 11	Δ	806	766	723	LMS-6300
2.80	2.40	2.00	1.60	39	159	4 ⁹ / ₃₂ × 8 × 11 ⁷ / ₈	Δ	1592	1513	1459	LMS-9300

PART V — MECHANICAL DRAWINGS

LMS SERIES

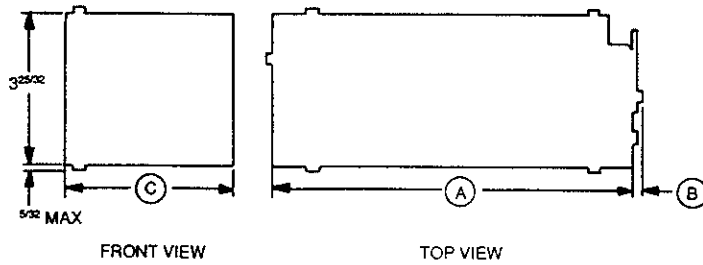
LMS-3000
LMS-4000
LMS-5000
LMS-6000
LMS-7000



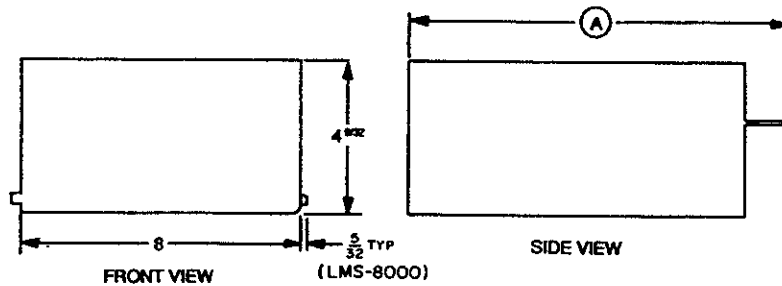
MODEL	A	B	C	D	E
LMS-3000	8.0	5/32	4 9/32	5 1/2	1.0
LMS-4000	9.0	1/4	4 12/64	7.0	1.0
LMS-5000	10.0	1/4	4 9/32	8.0	1.0
LMS-6000	10 3/4	1/4	4 9/32	6.0	2.0
LMS-7000	13.0	5/32	4 9/32	9 1/2	1 1/2

SIDE VIEW

ALL DIMENSIONS IN INCHES



LMS-8000
LMS-9000



USE 4 NO. 8-32 SCREWS;
1/4 INCH MAX PROTRUSION INTO UNIT.

MODEL	A	B	C	D
LMS-8000	10 1/2	8 1/2	2 1/4	6 1/2
LMS-9000	12 3/4	11 7/8	2.0	8 1/2

ALL DIMENSIONS IN INCHES

