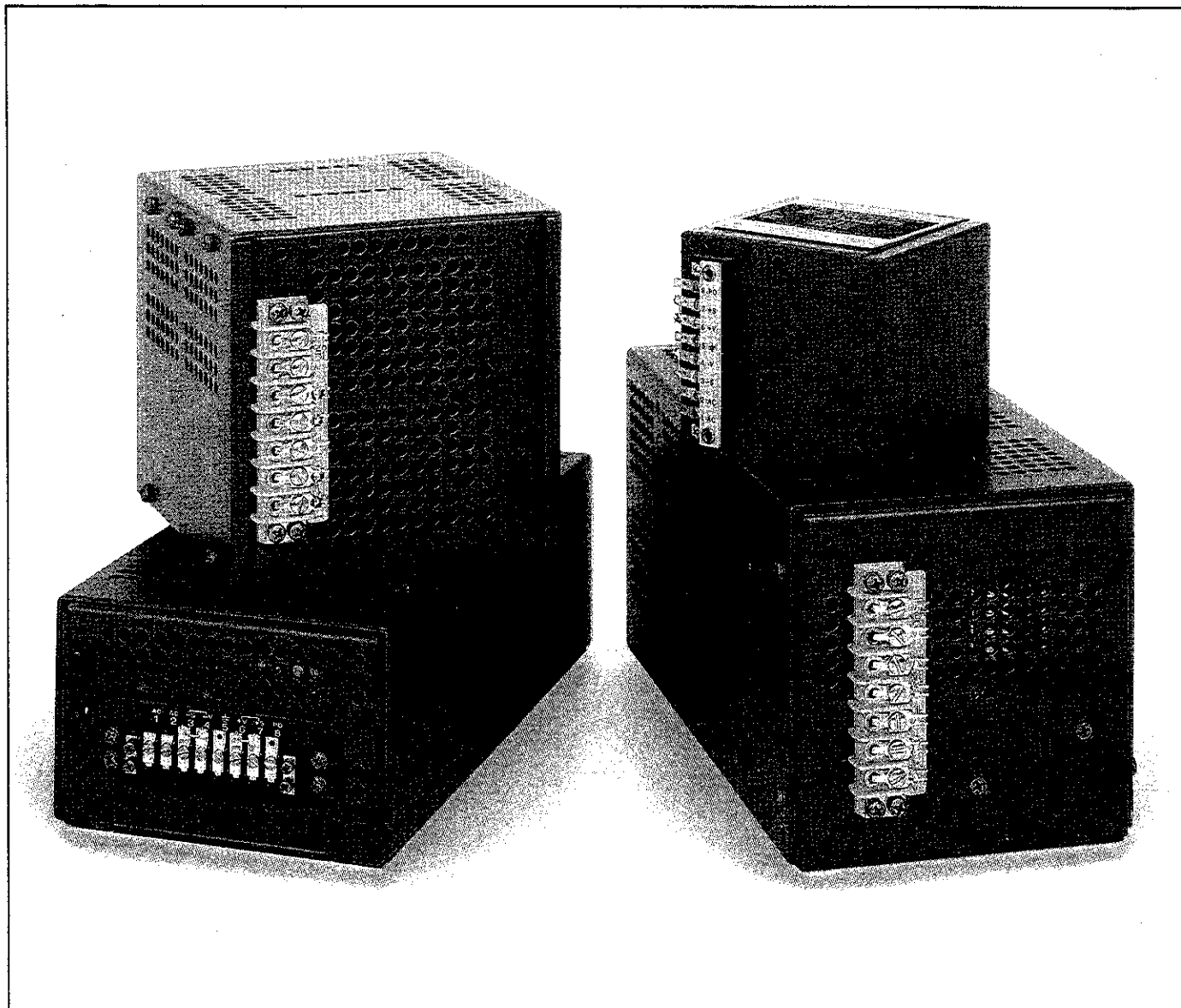


PART IB—AC-TO-DC LINEAR POWER SUPPLIES

LAMBDA'S MIL-ENVIRONMENT LC AND LX SERIES



FOR HIGH PRECISION, LOW NOISE APPLICATIONS

- The LC and LX Series operate over a wide temperature range with guaranteed operation to +71°C, and are designed to meet MIL-STD-810 environmental specifications. This makes the LC Series and LX Series ideal for a wide variety of applications where environmental extremes are encountered.
- Output ripple: 250 μ V RMS on LC Series;
1.5mV RMS on LX Series.
Regulation: .01% line and load on LC Series;
0.1% on LX Series.
Temperature coefficient: .01%/°C on LC Series;
0.03%/°C on LX Series.
- Lambda's LC and LX Series are designed for use in breadboards, laboratories or in any application where high precision and low noise is required.
- The LC and LX Series are manufactured using only the highest grade MIL type components in conjunction with hermetically sealed power semiconductors and monolithic voltage regulators. This provides long, service-free operation in critical applications.
- Lambda guarantees each unit will meet or exceed all published specifications for the full 5 year guarantee period.
- Grade 1 design.

PART IB—AC-TO-DC LINEAR POWER SUPPLIES

LAMBDA'S MIL-ENVIRONMENT LC AND LX SERIES

DC OUTPUT

Voltage range shown in tables.

REGULATED VOLTAGE

regulation, line	0.01% + 1mV on LC Series; 0.1% for LX Series.
regulation, load	0.01% + 1mV on LC Series; 0.1% for LX Series.
ripple and noise	250 μ V RMS, 1mV pk-pk on LC Series; 1.5mV RMS, 5mV pk-pk for LX Series with either positive or negative terminal grounded.
temperature coefficient	(0.01% + 300 μ V)/ $^{\circ}$ C with external program- ming resistor; (0.015% + 300 μ V)/ $^{\circ}$ C with internal programming resistor on LC Series. .03%/ $^{\circ}$ C for LX Series.
remote programming resistance	1000 Ω /volt nominal.
remote programming voltage	volt per volt.

AC INPUT

line	105 to 132VAC; 47-440Hz. Derate 10% for 50Hz operation. For operation at other than 57-63Hz and 187 to 242VAC, see AC input option. For 360-440Hz ratings consult factory.
power	LCS-A: 80 watts maximum. LXS-A: 91 watts maximum. LCS-B: 125 watts maximum. LCS-C: 215 watts maximum. LCS-CC: 300 watts maximum.

OVERSHOOT

No overshoot on turn-on, turn-off or power failure.

OPERATING TEMPERATURE RANGE

Continuous duty from -20° C to $+71^{\circ}$ C for LC Series and 0° C to $+71^{\circ}$ C for LX Series with corresponding load current ratings for all modes of operation.

STORAGE TEMPERATURE RANGE

-55° C to $+85^{\circ}$ C.

OVERLOAD PROTECTION ELECTRICAL

External overload protection; automatic electronic current limiting circuit limits the output current to a preset value thereby providing protection for the load as well as the power supply.

THERMAL

Thermostat, automatic reset when over-temperature condition is eliminated. (Not applicable to LCS-A models.)

COOLING

Convection cooled. No external heat sinking or forced air required.

DC OUTPUT CONTROLS

Simple screwdriver adjustment over the entire voltage range.

INPUT AND OUTPUT CONNECTIONS

Through terminal block on chassis.

CURRENT LIMIT

140% of 40° C rating for LCS-A. 130% of 40° C rating for LCS-B, LCS-C, LCS-CC.

MOUNTING

Three mounting surfaces. Designed to mount in Lambda standard rack adapters. The LX-E and LX-EE have only one mounting surface in a horizontal plane.

REMOTE SENSING

Provision is made for remote sensing to eliminate the effect of power output lead resistance on DC regulation. A terminal (RP) is provided for remote programming on LCS-CC models which eliminates interaction with internal voltage control.

FUNGUS PROOFING

All fungi nutrient components in the LX Series are rendered fungi inert. All models within the LC Series can be obtained with MIL-V-173 varnish to render fungi nutrient components inert. Add \$30.00 to price.

MILITARY SPECIFICATIONS

The LC and LX Series are designed to pass the following tests.

- 1) Altitude—MIL-STD-810, Method 500.1, Procedure I.
- 2) High Temperature—MIL-STD-810B, Method 501.1, Procedures I and II.
- 3) Low Temperature—MIL-STD-810B, Method 502.1, Procedure I.
- 4) Temperature Shock—MIL-STD-810B, Method 503.1, Procedure I, MIL-E-5272C, Para. 4.3.1, Procedure I.
- 5) Humidity—MIL-STD-810B, Method 507.1, Procedure I, MIL-E-5272C, Para. 4.4.1, Procedure I.
- 6) Shock—MIL-STD-810B, Method 516.1, Procedures I and III, MIL-E-5272C, Para. 4.15.5.1, 4.15.5.2.
- 7) Vibration—MIL-STD-810B, Notice 1, Method 514, Procedures X, XI.
- 8) EMI—MIL-I-6181D conducted.

PHYSICAL DATA

Package Model	Lbs. Net	Lbs. Ship	Size Inches
LC-A	6	7	3 ³ / ₁₆ × 3 ³ / ₄ × 6 ¹ / ₂
LC-B	7	8	3 ³ / ₁₆ × 4 ¹³ / ₁₆ × 6 ¹ / ₂
LC-C	10	11	3 ³ / ₁₆ × 4 ¹³ / ₁₆ × 9 ³ / ₈
LC-CC	15	17	4 ¹⁵ / ₁₆ × 4 ¹⁵ / ₁₆ × 9 ³ / ₈
LX-A	6	7	3 ³ / ₁₆ × 3 ³ / ₄ × 6 ¹ / ₂
LXS-CC	15	17	4 ¹⁵ / ₁₆ × 4 ¹⁵ / ₁₆ × 9 ³ / ₈
LX-D	23	26	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 9 ³ / ₈
LX-E	27	29	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 11 ³ / ₄
LX-EE	37	47	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 16 ¹ / ₂

FINISH

Gray. Fed. Std. 595 No. 26081.

ACCESSORIES

For rack adapters and other accessories, see Part IV of this catalog.

OPTIONS AC INPUT

Add Suffix	For Operation at:	Price
-V	187 to 242VAC 47-440Hz	20% or \$40*
-V1	205 to 265VAC 47-440Hz	20% or \$40*

*Whichever is greater.

Derate current 10% for 47-53Hz operation.

GUARANTEED FOR 5 YEARS

5-year guarantee includes labor as well as parts. Guarantee applied to operation at full published specifications at end of 5 years.

SAFETY AGENCY APPROVALS

Recognized.

PART IB—AC-TO-DC POWER SUPPLIES

MIL ENVIRONMENT LINEAR SELECTOR GUIDE

AC Input. Single Output. Fixed Voltage.

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								
5V ± 5% ADJ.											
4.0	3.4	2.7	2.0	83	181	3 ³ / ₁₆ × 3 ³ / ₄ × 6 ¹ / ₂	—	585	558	538	LX5-A-5-OV-R ⁽¹⁾⁽²⁾
27.5	24.2	20.5	16.5	83	181	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 9 ³ / ₈	—	1525	1453	1395	LX5-D-5-OV-R ⁽¹⁾⁽²⁾
35.0	30.0	24.0	17.5	83	181	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 11 ³ / ₄	—	1896	1806	1733	LX5-E-5-OV-R ⁽¹⁾⁽²⁾

*LAMBDA'S RECOMMENDED CHOICE FOR NEW DESIGN REQUIREMENTS.

- NOTES: (1) Includes fixed overvoltage protection.
 (2) All LX Series models have fungus proofing standard and is included in model notation and price.
 (3) ± 15 to ± 12 Volts are dual tracking unit outputs.
 (4) Ratings in parenthesis for LD and LN Series when cover is used.
 (A) All outputs continuously adjustable over entire range.
 (B) Current rating is from zero to I_{max}. With exception of LND Series, current rating applies over entire output voltage range.
 (C) LD, LC, LN, and LX Series power modules are available for operation at 360-440Hz. Consult factory for ratings and specifications. For 50Hz operation, derate LC Series by 10%; for LX Series delete 40°C rating.
 (D) Prices are U.S.A. list prices only, E.O.B. Melville, N.Y.; McAllen, Texas; Tucson, Arizona. All prices and specifications are subject to change without notice.

PART IB — AC-TO-DC LINEAR POWER SUPPLIES

MIL-ENVIRONMENT LINEAR SELECTOR GUIDE

AC Input. Single Output. Fixed Voltage.

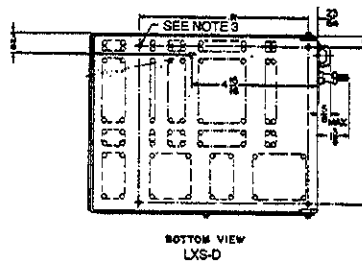
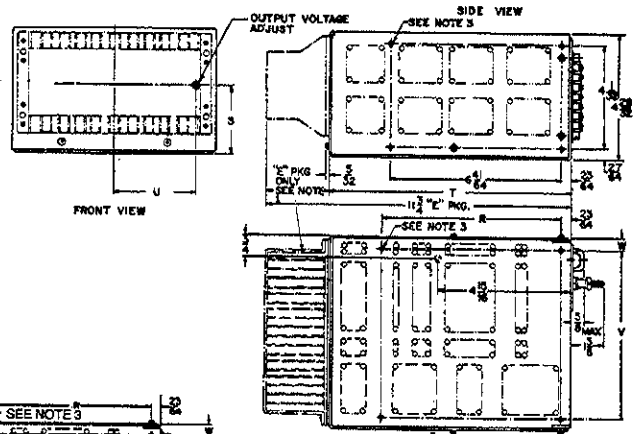
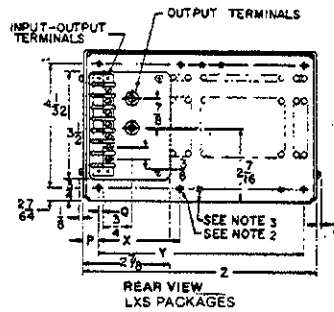
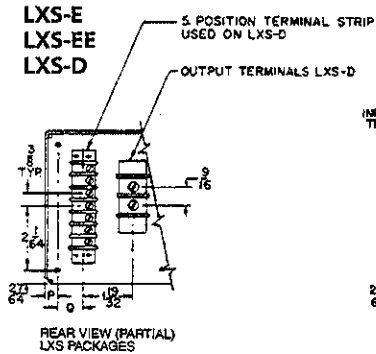
40°C	MAX CURRENT AT OPERATING TEMPERATURE OF			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	LAMBDA'S CHOICE (Δ)*	PRICE			MODEL
	50°C	60°C	71°C					QTY. 1	QTY. 10	QTY. 25	
28V ± 5% ADJ.											
9.0	8.0	6.8	5.5	83	181	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 9 ³ / ₈	—	1502	1431	—	LXS-D-28-R(2)
11.0	10.0	8.5	5.5	83	181	4 ¹⁵ / ₁₆ × 7 ¹ / ₂ × 11 ³ / ₄	—	1871	1783	—	LXS-E-28-R(2)

*LAMBDA'S RECOMMENDED CHOICE FOR NEW DESIGN REQUIREMENTS.

- NOTES: (1) Includes fixed overvoltage protection.
 (2) All LX Series models have fungus proofing standard and is included in model notation and price.
 (3) ± 15 to ± 12 Volts are dual tracking unit outputs.
 (4) Ratings in parenthesis for LD and LN Series when cover is used.
 (A) All outputs continuously adjustable over entire range.
 (B) Current rating is from zero to I_{max}. With exception of LND Series, current rating applies over entire output voltage range.
 (C) LD, LC, LN, and LX Series power modules are available for operation at 360-440Hz. Consult factory for ratings and specifications. For 50Hz operation, derate LC Series by 10%; for LX Series delete 40°C rating.
 (D) Prices are U.S.A. list prices only, F.O.B. Melville, N.Y.; McAllen, Texas; Tucson, Arizona. All prices and specifications are subject to change without notice.

PART V—MECHANICAL DRAWINGS

LX-S-A, LX-S-B, LX-S-C, LX-S-A, LX-S-E, LX-S-EI, AND LX-S-D



NOTES

- "E" PACKAGE MUST BE MOUNTED WITH RADIATOR FINS VERTICAL.
- PROVIDE 3/16" DIA. CLEARANCE HOLES FOR SCREW HEADS ON SIDE OF ALL UNITS.
- 8-32 TAPPED HOLES 6 ON REAR SURFACE OF "D" AND "E" PACKAGES, 4 EACH ON BOTTOM AND SIDE SURFACES FOR CUSTOMER CHASSIS MOUNTING (4 ON BOTTOM ONLY OF "EE" PACKAGES).
- TWO 6-32 TAPPED HOLES FOR MOUNTING OVERVOLTAGE PROTECTOR (4 ON LX-S-EE) ON "E" PACKAGES.
- CUSTOMER'S MOUNTING SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 3/16".
- TERMINAL STRIP SCREW SIZE PACKAGE E 5-40 x 1/4, PACKAGE EE 8-32 x 3/16.

MODEL	P	Q	R	S	T	U	V	W	X	Y	Z
LX-EE	—	—	12 ³ / ₁₆	2 ¹ / ₃₂	16 ¹ / ₂	2 ¹⁰ / ₁₆	6 ⁷ / ₁₆	3 ¹ / ₆₄	—	—	7 ¹ / ₂
LX-S-E	3 ¹ / ₆₄	1 ¹ / ₃₂	6 ²⁷ / ₆₄	2 ¹ / ₁₆	9 ³ / ₁₆	3 ¹ / ₆₄	6 ⁷ / ₁₆	3 ¹ / ₆₄	3 ⁶ / ₆₄	6 ²³ / ₆₄	7 ¹ / ₂
LX-S-D	3 ¹ / ₆₄	1 ¹ / ₃₂	6 ²⁷ / ₆₄	2 ¹ / ₁₆	9 ³ / ₁₆	3 ¹ / ₆₄	6 ⁷ / ₁₆	3 ¹ / ₆₄	3 ¹ / ₆₄	6 ²³ / ₆₄	7 ¹ / ₂