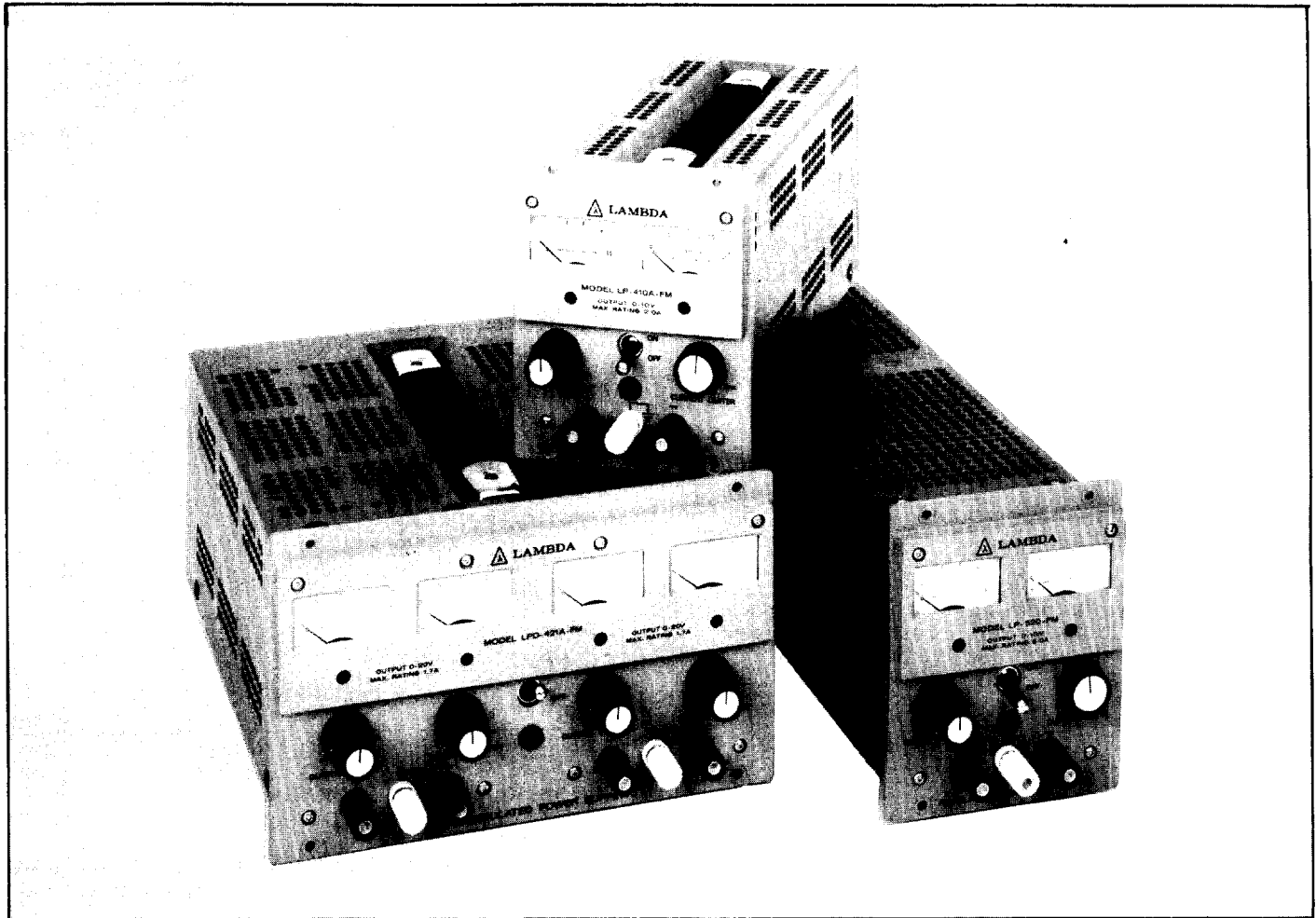


# PART III—LAB, TEST EQUIPMENT AND SYSTEM POWER SUPPLIES

## Lambda LP, LPD & LPT series



### Features—LP, LPD & LPT

Designed for both bench and rack use.

Convection cooled no blowers, no external heat sinks

Series/parallel operation

Continuously variable

Remotely programmable

Remote sensing

Constant voltage/constant current

Designed to meet RFI per MIL-STD 826A

Completely protected. Short circuit proof; continuously adjustable automatic current limiting

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

Features of dual and triple output models :

6 models with independent DC outputs offer widest choice up to  $\pm 250$  VDC, up to 5 Amps. Either output may be plus or minus, or both outputs may be plus or minus.

Series/parallel operation of outputs yields two times the voltage or two times the current—up to 500 Volts or up to 3.4 Amps.

Auto series/auto parallel (master-slave) permits tracking to a common reference

Separate meters provide simultaneous monitoring of both voltage and current.

Convection cooled, no blowers, no external heat sinks

# Voltage and current ratings

## LP, LPD & LPT series

<b>LPT SERIES TRIPLE OUTPUT MODEL</b>									
MODEL	REGULATION <sup>(3)</sup>	RIPPLE (RMS)	VOLTAGE RANGE (VDC) <sup>(2)</sup>	MAX. CURRENT, AMPS AT AMBIENT OF: <sup>(1)</sup>				DIMENSIONS	PRICE
				30° C	40° C	50° C	60° C		
LPT-7202-FM	0.01% + 1 mV	500 $\mu$ V	0-7	5.0	4.5	4.0	3.5	5-3/16" x 12-1/2" x 11"	\$902
			0-20	1.5	1.35	1.2	1.0		
			0-20	1.5	1.35	1.2	1.0		
<b>LPD SERIES DUAL OUTPUT MODELS</b>									
MODEL	REGULATION <sup>(3)</sup>	RIPPLE (RMS)	VOLTAGE RANGE <sup>(2)</sup> PER OUTPUT/OUTPUTS IN SERIES VDC	MAX. CURRENT, AMPS AT AMBIENT OF: <sup>(1)</sup>				DIMENSIONS	PRICE
				30° C	40° C	50° C	60° C		
*LPD-421A-FM	0.01% + 1 mV	500 $\mu$ V	0- $\pm$ 20/0-40	1.7/3.4	1.5/3.0	1.3/2.6	0.9/1.8	5-3/16" x 8-3/8" x 10-3/32"	\$613
*LPD-422A-FM	0.01% + 1 mV	500 $\mu$ V	0- $\pm$ 40/0-80	1.0/2.0	0.85/1.7	0.7/1.4	0.55/1.1	5-3/16" x 8-3/8" x 10-3/32"	613
*LPD-423A-FM	0.01% + 1 mV	500 $\mu$ V	0- $\pm$ 60/0-120	0.7/1.4	0.6/1.2	0.5/1.0	0.4/0.8	5-3/16" x 8-3/8" x 10-3/32"	613
LPD-424A-FM	0.01% + 1 mV	500 $\mu$ V	0- $\pm$ 120/0-240	0.38/0.76	0.32/0.64	0.26/0.52	0.20/0.40	5-3/16" x 8-3/8" x 10-3/32"	613
LPD-425A-FM	0.01% + 1 mV	1 mV	0- $\pm$ 250/0-500	0.13/0.26	0.12/0.24	0.11/0.22	0.10/0.20	5-3/16" x 8-3/8" x 10-3/32"	730
<b>LP SERIES SINGLE OUTPUT MODELS</b>									
MODEL	REGULATION <sup>(3)</sup>	RIPPLE (RMS)	30° C	MAX. CURRENT, AMPS AT AMBIENT OF: <sup>(1)</sup>				DIMENSIONS	PRICE
				40° C	50° C	60° C			
<b>0-10 VOLTS</b>									
*LP-410A-FM	0.01% + 1 mV	500 $\mu$ V	2.0	1.8	1.6	1.4	5-3/16" x 4-3/16" x 10"	\$344	
*LP-520-FM	0.01% + 1 mV	500 $\mu$ V	5.0	4.7	4.3	3.7	5-3/16" x 4-3/16" x 15-1/2"	424	
*LP-530-FM	0.01% + 1 mV	500 $\mu$ V	10.0	9.0	8.0	7.0	5-3/16" x 8-3/8" x 15-5/8"	613	
<b>0-20 VOLTS</b>									
*LP-411A-FM	0.01% + 1 mV	500 $\mu$ V	1.2	1.1	1.0	0.8	5-3/16" x 4-13/16" x 10"	344	
*LP-521-FM	0.01% + 1 mV	500 $\mu$ V	3.3	3.0	2.6	2.3	5-3/16" x 4-13/16" x 15-1/2"	424	
*LP-531-FM	0.01% + 1 mV	500 $\mu$ V	5.7	5.3	4.7	4.0	5-3/16" x 8-3/8" x 15-5/8"	591	
<b>0-40 VOLTS</b>									
*LP-412A-FM	0.01% + 1 mV	500 $\mu$ V	1.0	0.90	0.80	0.60	5-3/16" x 4-3/16" x 10"	344	
*LP-522-FM	0.01% + 1 mV	500 $\mu$ V	1.8	1.6	1.4	1.2	5-3/16" x 4-3/16" x 15-1/2"	424	
*LP-532-FM	0.01% + 1 mV	500 $\mu$ V	3.0	2.9	2.7	2.3	5-3/16" x 8-3/8" x 15-5/8"	591	
<b>0-60 VOLTS</b>									
*LP-413A-FM	0.01% + 1 mV	500 $\mu$ V	0.45	0.41	0.37	0.33	5-3/16" x 4-3/16" x 10"	344	
*LP-523-FM	0.01% + 1 mV	500 $\mu$ V	0.9	0.8	0.7	0.6	5-3/16" x 4-3/16" x 15-1/2"	424	
*LP-533-FM	0.01% + 1 mV	500 $\mu$ V	2.4	2.2	2.1	1.8	5-3/16" x 8-3/8" x 15-5/8"	659	
<b>0-120 VOLTS</b>									
LP-524-FM	0.01% + 1 mV	500 $\mu$ V	0.5	0.45	0.4	0.35	5-3/16" x 4-3/16" x 15-1/2"	483	
LP-534-FM	0.01% + 1 mV	500 $\mu$ V	1.2	1.0	0.9	0.8	5-3/16" x 8-3/8" x 15-5/8"	730	
<b>0-250 VOLTS</b>									
LP-415A-FM	0.01% + 1 mV	500 $\mu$ V	80 mA	72 mA	65 mA	60 mA	5-3/16" x 4-3/16" x 10"	424	

**NOTES:**

\*Overvoltage protection available as an accessory. Each output requires separate OV accessory — add \$35.00 for each output.

See page 88.

<sup>(1)</sup> Current rating applies over entire voltage range. Ratings based on 57-63 Hz operation.

<sup>(2)</sup> LPD, LPT Series models require one LH-OV for each output.

<sup>(3)</sup> See next page for full specifications.

PART III

# Specifications—LP, LPD & LPT series

## DC Output

Voltages ranges shown in tables.

### Regulated Voltage

regulation  
 (line or load) ..... 0.01% + 1mV for line variations from 105-132 VAC or for load changes from no load to full load.  
 current range ..... as shown in table  
 remote programming  
 resistance ..... 200 ohms/volt nominal  
 remote programming  
 voltage ..... volt per volt.  
 ripple and noise ..... 500  $\mu$ V RMS, 1.5 mV pk-pk (either plus or minus terminal grounded.)  
 LPD-425-A-FM model only 1 mV RMS, 3 mV, pk-pk.  
 temperature  
 coefficient ..... (0.015% + 0.3 mV/°C-LP, LPT models (0.015% + 0.5 mV)/°C-LPD models.

### Constant Current

(current regulated line and load)

### AUTOMATIC CROSSOVER

voltage range ..... as shown in tables.  
 current range ..... min: 45 mA or 1% whichever is greater (LP-530-FM—LP-543-FM, LPT models only) all other LP models and LPD models 5 mA or 1% whichever is greater.  
 max: as shown in tables.  
 regulation  
 (line or load) ..... less than 0.2% or 5 mA whichever is greater.

### AC Input

105-132 VAC; 47-440 Hz. Ratings based on 57-63 Hz.  
 187-242 VAC; 205-265 VAC. See "AC Input Option."

### Ambient Operating Temperature Range

Continuous duty from 0° to +60°C.

### Storage Temperature Range

-55°C to +85°C.

### Overload Protection

#### THERMAL

Thermostat, automatic reset.

#### ELECTRICAL

external overload  
 protection ..... adjustable, automatic electronic current limiting, settable to 105% of rated current.  
 internal failure  
 protection ..... provided by fuse.

### Input and output connections

Covered terminal block on rear of chassis; five-way binding posts on front panel. On LPD, LPT Models one set of five-way posts is provided for each output.

## Meters

Voltmeter and ammeter. For LPD, LPT Models, each output has a separate voltmeter and ammeter.

## Controls

### DC OUTPUT CONTROLS

Coarse and fine voltage and coarse and fine current adjust provided on front panel of all LPD, LPT models for each output. On all other LP models coarse and fine voltage adjust and single current adjust controls are provided.

### Power

On-off switch, front panel.

### Remote sensing

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

## Physical Data

Series	Weight		Size Inches
	Lbs. Net	Lbs. Ship	
LP410A	7	10	5-3/16 x 4-3/16 x 10
LP520	14	18	5-3/16 x 4-3/16 x 15-1/2
LP530	25	30	5-3/16 x 8-3/8 x 15-5/8
LPD	13	16	5-3/16 x 8-3/8 x 10-3/32
LPT	24	29	5-3/16 x 12-1/2 x 11

### Panel finish

Tan glass-filled, flame-retardant nylon panels.

### Accessories

Rack adapters, overvoltage protectors, pot covers, blank panels. See page 88.

### Options

#### AC Input

Add Suffix	For Operation at:	Price Qty. 1-14	Price Single Model Qty. 15 & up	Price Mixed Model Qty. 15 & up
—V	187-242 VAC	12%	10%	12%
	47-440 Hz	or \$30*		or \$30*
—V1	205-265 VAC	12%	10%	12%
	47-440 Hz	or \$30*		or \$30*

\*Whichever is greater.

For 50 Hz operation derate current 10% on all models.

### Fungus proofing

Add suffix "—R" to model number and add 10% or \$25.00 to the price (whichever is greater).

### Guaranteed for 5 years

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