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 ±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

### LPT SERIES TRIPLE OUTPUT MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>REGULATION (°)</th>
<th>RIPPLE (μV)</th>
<th>VOLTAGE RANGE (VDC)**</th>
<th>MAX. CURRENT, AMPS AT AMBIENT OF:††</th>
<th>DIMENSIONS</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPT-7202-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-7</td>
<td>30°C</td>
<td>5.0</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>0-20</td>
<td>1.5</td>
<td>20</td>
<td>30°C</td>
<td>6.7</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>0-20</td>
<td>1.5</td>
<td>20</td>
<td>40°C</td>
<td>5.0</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>0-20</td>
<td>1.5</td>
<td>20</td>
<td>50°C</td>
<td>4.0</td>
<td>2.3</td>
</tr>
</tbody>
</table>

### LPD SERIES DUAL OUTPUT MODELS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>REGULATION (°)</th>
<th>RIPPLE (μV)</th>
<th>VOLTAGE RANGE (VDC)**</th>
<th>MAX. CURRENT, AMPS AT AMBIENT OF:††</th>
<th>DIMENSIONS</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>*LPD-421A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120/0-240</td>
<td>30°C</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>*LPD-422A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120/0-240</td>
<td>40°C</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>*LPD-423A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120/0-240</td>
<td>50°C</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>LPD-424A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120/0-240</td>
<td>60°C</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>LPD-425A-FM</td>
<td>0.01% + 1 mV</td>
<td>1 mV</td>
<td>0-250/0-500</td>
<td>30°C</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>0-20</td>
<td>1.5</td>
<td>1.5</td>
<td>40°C</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>0-20</td>
<td>1.5</td>
<td>1.5</td>
<td>50°C</td>
<td>1.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>

### LP SERIES SINGLE OUTPUT MODELS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>REGULATION (°)</th>
<th>RIPPLE (μV)</th>
<th>VOLTAGE RANGE (VDC)**</th>
<th>MAX. CURRENT, AMPS AT AMBIENT OF:††</th>
<th>DIMENSIONS</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 VOLTS</td>
<td>*LP-410A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-10</td>
<td>30°C</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>*LP-520-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-10</td>
<td>40°C</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>*LP-530-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-10</td>
<td>50°C</td>
<td>1.0</td>
</tr>
<tr>
<td>0-20 VOLTS</td>
<td>*LP-411A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-20</td>
<td>30°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>*LP-521-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-20</td>
<td>40°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>*LP-531-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-20</td>
<td>50°C</td>
<td>1.2</td>
</tr>
<tr>
<td>0-40 VOLTS</td>
<td>*LP-412A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-40</td>
<td>30°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>*LP-522-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-40</td>
<td>40°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>*LP-532-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-40</td>
<td>50°C</td>
<td>1.2</td>
</tr>
<tr>
<td>0-60 VOLTS</td>
<td>*LP-413A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-60</td>
<td>30°C</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>*LP-523-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-60</td>
<td>40°C</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>*LP-533-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-60</td>
<td>50°C</td>
<td>2.0</td>
</tr>
<tr>
<td>0-120 VOLTS</td>
<td>LP-524-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120</td>
<td>30°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>LP-534-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120</td>
<td>40°C</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>LP-545A-FM</td>
<td>0.01% + 1 mV</td>
<td>500 uV</td>
<td>0-120</td>
<td>50°C</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Notes:
- Overvoltage protection available as an accessory. Each output requires separate OV accessory — add $35.00 for each output. See page 88.
- Current rating applies over entire voltage range. Ratings based on 57-63 Hz operation.
- LPD, LPT Series models require one LH-OV for each output.
- See next page for full specifications.

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**PART III**
Specifications—LP, LPD & LPT series

DC Output
Voltages ranges shown in tables.

Regulated Voltage
regulation
(line or load) ....... 0.01% + 1 mV 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 μV 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
(constant 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 pro-
vided 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

<table>
<thead>
<tr>
<th>Series</th>
<th>Weight Net</th>
<th>Weight Ship</th>
<th>Size Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP410A</td>
<td>7</td>
<td>10</td>
<td>5-3/16 x 4-3/16 x 10</td>
</tr>
<tr>
<td>LP520</td>
<td>14</td>
<td>18</td>
<td>5-3/16 x 4-3/16 x 15-1/2</td>
</tr>
<tr>
<td>LP530</td>
<td>25</td>
<td>30</td>
<td>5-3/16 x 8-3/8 x 15-5/8</td>
</tr>
<tr>
<td>LPD</td>
<td>13</td>
<td>16</td>
<td>5-3/16 x 8-3/8 x 10-3/32</td>
</tr>
<tr>
<td>LPT</td>
<td>24</td>
<td>29</td>
<td>5-3/16 x 12-1/2 x 11</td>
</tr>
</tbody>
</table>

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