

## PART III—TEST, SYSTEMS AND LABORATORY POWER SUPPLIES

### LAMBDA'S LQ AND LPT SERIES



### PURE DC FOR LOW NOISE, HIGH RELIABILITY APPLICATIONS

- Ripple:  $150\mu\text{V}$  Regulation: .005%  
Temperature Coefficient: .005% Pure DC best describes these specifications that make the LQ Series ideal for low noise ATE, lab, or any application requiring high quality and reliability.
- 21 models available in five package sizes, up to 500VDC, up to 140 Watts. This breadth of line allows an engineer to specify an exact model tailoring the output power to the application.
- The LQ Series is designed using a multi-function voltage regulator IC with built-in chip temperature regulation.
- All models feature a digital meter readout, constant voltage or constant current operation, and packaging designed for bench or rack mount use. They provide the versatility for either laboratory or ATE test use.
- The LQ and LPT Series are backed with Lambda's 5 year guarantee. This ensures the product will operate to published specifications for the life of the product per its guarantee. All models are designed using the best quality components, designed in margins and overall reliability... ideal for industrial and lab type applications.
- Grade 1 design.

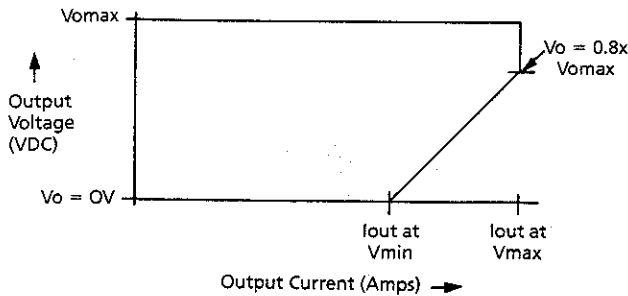
# PART III—TEST, SYSTEMS AND LABORATORY POWER SUPPLIES

## LAMBDA'S LQ SERIES, LPT SERIES

### DC OUTPUT

Refer to the tables. For LQ-530 Series only, refer to figure below.

Fig. 1



### REGULATED VOLTAGE

regulation, line	0.005% + 0.5mV (0.01% + 1mV for LPT) for line variations from 105 to 132VAC (187 to 242VAC on "V" options; 205 to 265VAC on "V1" options).
regulation, load	0.005% + 0.5mV (0.01% + 1mV for LPT) for load variations from 0 to full load.
ripple and noise (20MHz Bandwidth)	1mV pk-pk, 150 $\mu$ V RMS (300 $\mu$ V on LQ-415 and LQD-425) with plus or minus terminal grounded. (1.5mV pk-pk, 500 $\mu$ V RMS for LPT.)
temperature coefficient	$\pm (0.005\% V_o + 10\mu\text{V})/^{\circ}\text{C}$ . (With external programming resistors.) (0.015% + 3mV/ $^{\circ}\text{C}$ for LPT.)
remote programming resistance	1000 $\Omega$ /volt nominal (500 $\Omega$ /volt nominal on LQ-415 and LQD-425 200 $\Omega$ /volt for LPT). Downward programming to voltages less than 1 volt must be accomplished in two steps; first, from original voltage value to 1 volt, and then from 1 volt to final desired value.
remote programming voltage	volt per volt.

### CONSTANT CURRENT

(automatic crossover)	
range	LQD, LQ-410, LQ-520 Series-1% to $I_{out \text{ max}}$ (min 45mA or 1% for LPT). LQ-530 Series-1% to $\approx 70\% I_{out \text{ max}}$ (refer to Fig. 1).
regulation, line	1mA max for line variations from 105 to 132VAC (187 to 242VAC for "V" options; 205 to 265VAC for "V1" options). (Less than 0.2% or 7.5mA for LPT.)
regulation, load	2.5mA max for load changes from 0 to rated DC voltage. 3.5mA max for LQ-415 and LQ-425 models.

### AC INPUT

line	105 to 132VAC (47-440Hz) standard input (derate output by 10% at 50Hz). See options. Consult factory for operation above 63Hz.
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### OPERATING TEMPERATURE RANGE

Continuous duty from 0 to 60 $^{\circ}\text{C}$  with appropriate deratings above 30 $^{\circ}\text{C}$  (see table).

### STORAGE TEMPERATURE

-55 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$ .

### OVERLOAD PROTECTION THERMAL

By self-resetting thermostat.

### ELECTRICAL

External overload protection, adjustable, automatic current limiting circuit limits output current to preset value. Current limiter variable from zero to  $I_{MAX}$  or to appropriate max. value at output voltage setting via front panel adjustment (see fig. 1) for LQ-530 series only.

### INTERNAL FAILURE PROTECTION

Provided by primary and secondary fuses.

### COOLING

Convection cooled—no fans or blowers required.

### DC OUTPUT CONTROLS

Coarse/fine (LQD-421, LQ-410, LQ-411, LQ-530, LQ-531, LQ-520, LQ-521, LPT) or multiturn (LQD-422 through LQD-425, LQ-412, through LQ-415, LQ-532 through LQ-534 and LQ-522-LQ-524) voltage adjust and single turn current adjust on front panel. An adjustable range of 1%- $V_o$  max to  $V_o$  max is provided by the internal programming potentiometer; programming over the full 0 to  $V_o$  max range can be accomplished by remote programming.

### POWER CONTROL

On-off switch on front panel.

### METERS

Digital panel meter standard on all sets. Monitors output voltage/current by means of volt/amp selector switch. (Each output on LPT models has a separate analog voltmeter and ammeter.)

### INPUT AND OUTPUT CONNECTIONS

Heavy duty barrier strip at rear of chassis. Five-way binding posts on front panel for output connections.

### REMOTE SENSING

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

### SERIES/PARALLEL OPERATION

Provision is made for auto series/auto parallel (master-slave) operation to permit tracking to a common reference.

### PHYSICAL DATA

Package Model	Lbs. Net.	Lbs. Ship	Size inches
LQD-420	12	15	5 $\frac{3}{16}$ × 8 $\frac{3}{8}$ × 10 $\frac{3}{32}$
LQ-410	9	12	5 $\frac{3}{16}$ × 4 $\frac{3}{16}$ × 10
LQ-520	14	18	5 $\frac{3}{16}$ × 4 $\frac{3}{16}$ × 15 $\frac{1}{2}$
LQ-530	25	30	5 $\frac{3}{16}$ × 8 $\frac{3}{8}$ × 15 $\frac{5}{8}$
LPT	24	29	5 $\frac{3}{16}$ × 12 $\frac{1}{2}$ × 11

### OPTIONS

#### AC INPUT

Add Suffix	For Operation at:	Add to Price
-V	187 to 242VAC, 47-440Hz	12%
-V1	205 to 265VAC, 47-440Hz	12%

Derate output by 10% at 50Hz. Consult factory for operation above 63Hz.

### ACCESSORIES

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

### FUNGUS PROOFING

Add Suffix "-R" to Model Number and add 10% to price.

### GUARANTEED FOR 5 YEARS

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

# PART III—TEST, SYSTEMS AND LABORATORY POWER SUPPLIES

## LABORATORY AND TEST SELECTOR GUIDE

### LQ Series. Single Output.

VOLTAGE RANGE VDC	MAX CURRENT AT AMBIENT OF (AMPS)				COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	QTY. 1	PRICE QTY. 10	QTY. 25	MODEL
	30°C	40°C	50°C	60°C						
0-10	2.0	1.8	1.6	1.4	129	190	\$788	\$751	\$721	LQ-410
0-20	1.2	1.1	1.0	0.80	129	190	788	751	721	LQ-411
0-40	1.0	0.90	0.80	0.60	129	190	788	751	721	LQ-412
0-60	0.45	0.41	0.37	0.33	129	190	788	751	721	LQ-413
0-250	80mA	72mA	65mA	60mA	129	190	906	864	829	LQ-415

VOLTAGE RANGE VDC	MAX CURRENT AT AMBIENT OF (AMPS)				COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	QTY. 1	PRICE QTY. 10	QTY. 25	MODEL
	30°C	40°C	50°C	60°C						
0-10	5.0	4.7	4.3	3.7	129	190	\$951	\$906	\$869	LQ-520
0-20	3.3	3.0	2.6	2.3	129	190	951	906	869	LQ-521
0-40	1.8	1.6	1.4	1.2	129	190	951	906	869	LQ-522
0-60	0.9	0.8	0.7	0.6	129	190	951	906	869	LQ-523
0-120	0.5	0.45	0.4	0.35	129	190	994	947	909	LQ-524

VOLTAGE RANGE VDC	MAX CURRENT AT AMBIENT OF (AMPS)								COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	QTY. 1	PRICE QTY. 10	QTY. 25	MODEL
	30°C		40°C		50°C		60°C							
	At	Vmax	At	Vmin	At	Vmax	At	Vmin						
0-10	14.0	10.0	12.7	9.0	11.0	8.0	9.2	7.2	129	191	\$1282	\$1221	\$1171	LQ-530
0-20	8.6	6.0	8.6	5.6	7.4	5.1	6.4	4.6	129	191	1282	1221	1171	LQ-531
0-40	5.0	3.5	5.0	3.3	4.5	3.0	3.9	2.7	129	191	1282	1221	1171	LQ-532
0-60	3.3	2.4	3.3	2.3	3.0	2.1	2.5	1.9	129	191	1282	1221	1171	LQ-533
0-120	1.7	1.2	1.7	1.1	1.6	1.0	1.5	0.9	129	191	1406	1340	1286	LQ-534

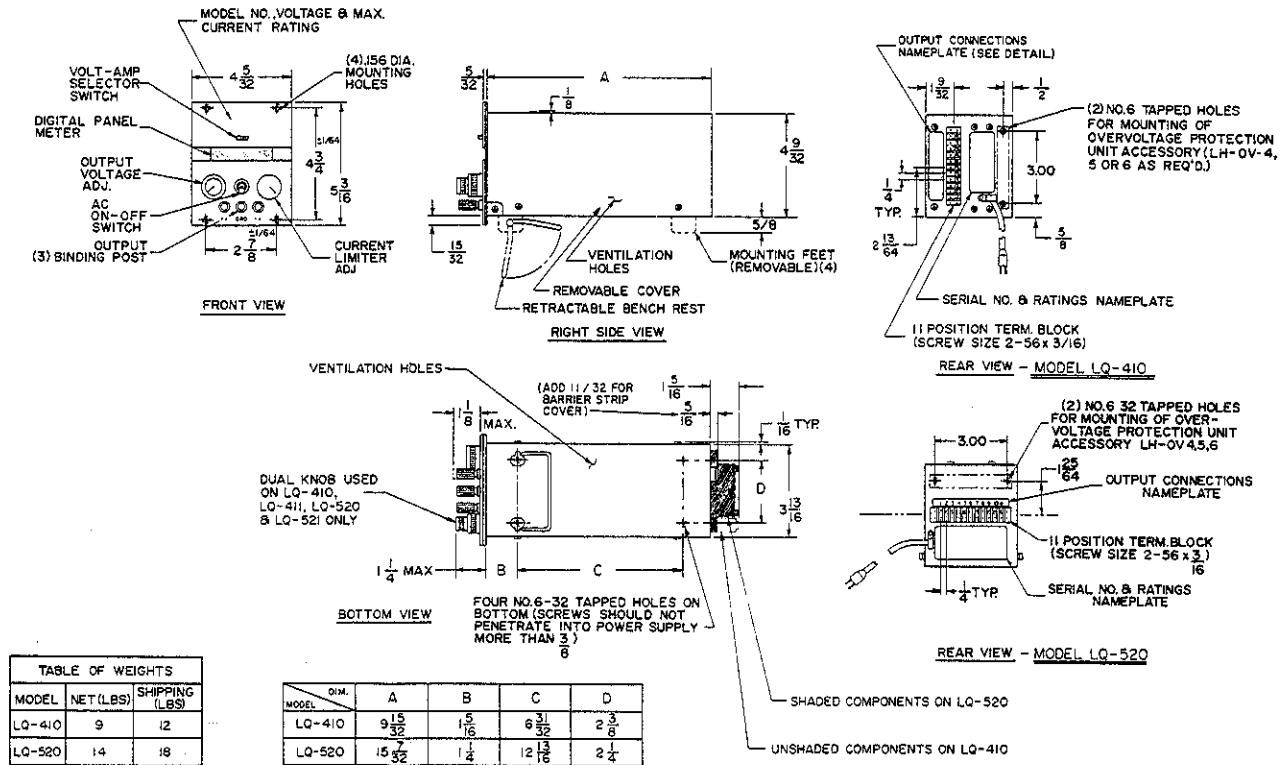
### LQ Series. Dual Output.

VOLTAGE RANGE (Per Output/Outputs In Series)	MAX CURRENT AT AMBIENT OF (AMPS) (Per Output/Outputs In Parallel)				COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	QTY. 1	PRICE QTY. 10	QTY. 25	MODEL
	30°C	40°C	50°C	60°C						
0- ±20/0-40	1.7/3.4	1.5/3.0	1.3/2.6	0.90/1.8	129	190	\$1377	\$1312	\$1259	LQD-421
0- ±40/0-80	1.0/2.0	0.85/1.70	0.7/1.4	0.55/1.1	129	190	1377	1312	1259	LQD-422
0- ±60/0-120	0.7/1.4	0.60/1.20	0.5/1.0	0.40/0.80	129	190	1377	1312	1259	LQD-423
0- ±120/0-240	0.38/0.76	0.32/0.64	0.26/0.52	0.20/0.40	129	190	1377	1312	1259	LQD-424
0- ±250/0-500	0.13/0.26	0.12/0.24	0.11/0.22	0.10/0.20	129	190	1449	1380	1324	LQD-425

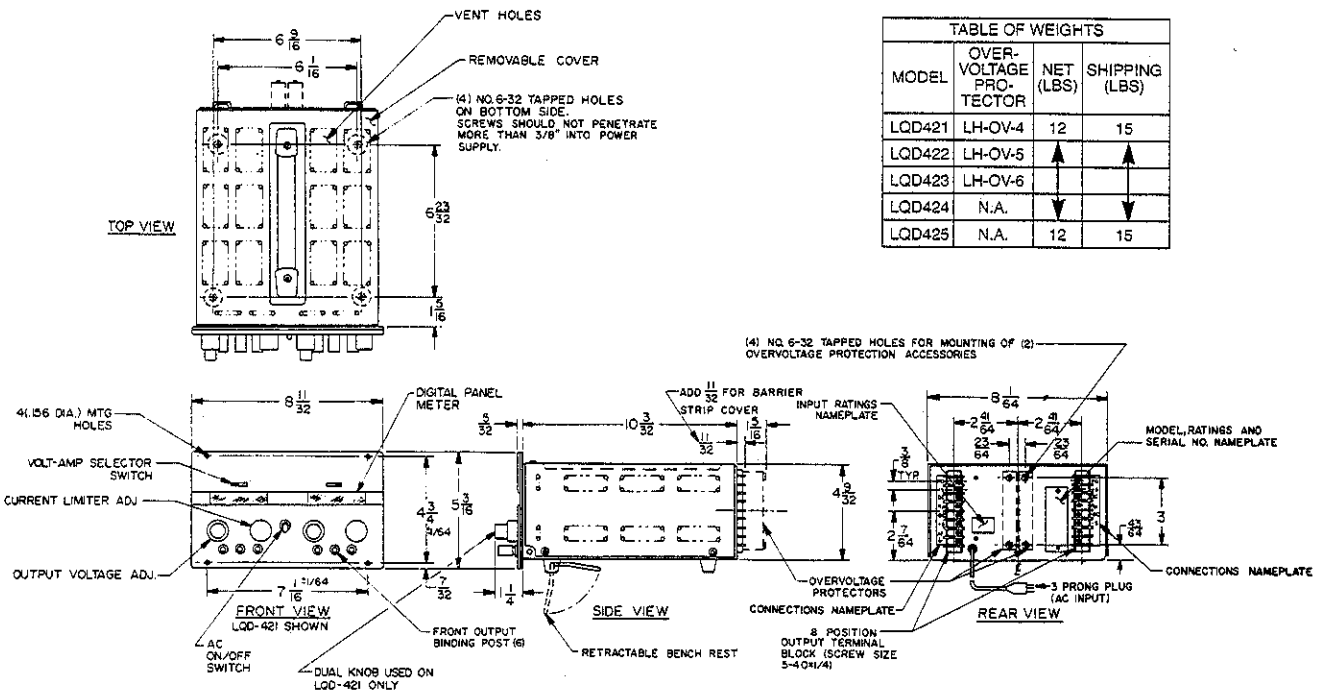
# PART V — MECHANICAL DRAWINGS

## LQ-410, LQ-520 AND LQD-420 SERIES

LQ-410 Series  
LQ-520 Series



### LQD-420 Series



# PART V—MECHANICAL DRAWINGS

## LQ-530 AND LQ-531, LQ-532, LQ-533, LQ-534, LQ-535, LQ-536, LQ-537, LQ-538, LQ-539, LQ-540, LQ-541, LQ-542, LQ-543, LQ-544, LQ-545, LQ-546, LQ-547, LQ-548, LQ-549, LQ-550, LQ-551, LQ-552, LQ-553, LQ-554, LQ-555, LQ-556, LQ-557, LQ-558, LQ-559, LQ-560, LQ-561, LQ-562, LQ-563, LQ-564, LQ-565, LQ-566, LQ-567, LQ-568, LQ-569, LQ-570, LQ-571, LQ-572, LQ-573, LQ-574, LQ-575, LQ-576, LQ-577, LQ-578, LQ-579, LQ-580, LQ-581, LQ-582, LQ-583, LQ-584, LQ-585, LQ-586, LQ-587, LQ-588, LQ-589, LQ-590, LQ-591, LQ-592, LQ-593, LQ-594, LQ-595, LQ-596, LQ-597, LQ-598, LQ-599, LQ-600, LQ-601, LQ-602, LQ-603, LQ-604, LQ-605, LQ-606, LQ-607, LQ-608, LQ-609, LQ-610, LQ-611, LQ-612, LQ-613, LQ-614, LQ-615, LQ-616, LQ-617, LQ-618, LQ-619, LQ-620, LQ-621, LQ-622, LQ-623, LQ-624, LQ-625, LQ-626, LQ-627, LQ-628, LQ-629, LQ-630, LQ-631, LQ-632, LQ-633, LQ-634, LQ-635, LQ-636, LQ-637, LQ-638, LQ-639, LQ-640, LQ-641, LQ-642, LQ-643, LQ-644, LQ-645, LQ-646, LQ-647, LQ-648, LQ-649, LQ-650, LQ-651, LQ-652, LQ-653, LQ-654, LQ-655, LQ-656, LQ-657, LQ-658, LQ-659, LQ-660, LQ-661, LQ-662, LQ-663, LQ-664, LQ-665, LQ-666, LQ-667, LQ-668, LQ-669, LQ-670, LQ-671, LQ-672, LQ-673, LQ-674, LQ-675, LQ-676, LQ-677, LQ-678, LQ-679, LQ-680, LQ-681, LQ-682, LQ-683, LQ-684, LQ-685, LQ-686, LQ-687, LQ-688, LQ-689, LQ-690, LQ-691, LQ-692, LQ-693, LQ-694, LQ-695, LQ-696, LQ-697, LQ-698, LQ-699, LQ-700, LQ-701, LQ-702, LQ-703, LQ-704, LQ-705, LQ-706, LQ-707, LQ-708, LQ-709, LQ-710, LQ-711, LQ-712, LQ-713, LQ-714, LQ-715, LQ-716, LQ-717, LQ-718, LQ-719, LQ-720, LQ-721, LQ-722, LQ-723, LQ-724, LQ-725, LQ-726, LQ-727, LQ-728, LQ-729, LQ-730, LQ-731, LQ-732, LQ-733, LQ-734, LQ-735, LQ-736, LQ-737, LQ-738, LQ-739, LQ-740, LQ-741, LQ-742, LQ-743, LQ-744, LQ-745, LQ-746, LQ-747, LQ-748, LQ-749, LQ-750, LQ-751, LQ-752, LQ-753, LQ-754, LQ-755, LQ-756, LQ-757, LQ-758, LQ-759, LQ-760, LQ-761, LQ-762, LQ-763, LQ-764, LQ-765, LQ-766, LQ-767, LQ-768, LQ-769, LQ-770, LQ-771, LQ-772, LQ-773, LQ-774, LQ-775, LQ-776, LQ-777, LQ-778, LQ-779, LQ-780, LQ-781, LQ-782, LQ-783, LQ-784, LQ-785, LQ-786, LQ-787, LQ-788, LQ-789, LQ-790, LQ-791, LQ-792, LQ-793, LQ-794, LQ-795, LQ-796, LQ-797, LQ-798, LQ-799, LQ-800, LQ-801, LQ-802, LQ-803, LQ-804, LQ-805, LQ-806, LQ-807, LQ-808, LQ-809, LQ-810, LQ-811, LQ-812, LQ-813, LQ-814, LQ-815, LQ-816, LQ-817, LQ-818, LQ-819, LQ-820, LQ-821, LQ-822, LQ-823, LQ-824, LQ-825, LQ-826, LQ-827, LQ-828, LQ-829, LQ-830, LQ-831, LQ-832, LQ-833, LQ-834, LQ-835, LQ-836, LQ-837, LQ-838, LQ-839, LQ-840, LQ-841, LQ-842, LQ-843, LQ-844, LQ-845, LQ-846, LQ-847, LQ-848, LQ-849, LQ-850, LQ-851, LQ-852, LQ-853, LQ-854, LQ-855, LQ-856, LQ-857, LQ-858, LQ-859, LQ-860, LQ-861, LQ-862, LQ-863, LQ-864, LQ-865, LQ-866, LQ-867, LQ-868, LQ-869, LQ-870, LQ-871, LQ-872, LQ-873, LQ-874, LQ-875, LQ-876, LQ-877, LQ-878, LQ-879, LQ-880, LQ-881, LQ-882, LQ-883, LQ-884, LQ-885, LQ-886, LQ-887, LQ-888, LQ-889, LQ-890, LQ-891, LQ-892, LQ-893, LQ-894, LQ-895, LQ-896, LQ-897, LQ-898, LQ-899, LQ-900, LQ-901, LQ-902, LQ-903, LQ-904, LQ-905, LQ-906, LQ-907, LQ-908, LQ-909, LQ-910, LQ-911, LQ-912, LQ-913, LQ-914, LQ-915, LQ-916, LQ-917, LQ-918, LQ-919, LQ-920, LQ-921, LQ-922, LQ-923, LQ-924, LQ-925, LQ-926, LQ-927, LQ-928, LQ-929, LQ-930, LQ-931, LQ-932, LQ-933, LQ-934, LQ-935, LQ-936, LQ-937, LQ-938, LQ-939, LQ-940, LQ-941, LQ-942, LQ-943, LQ-944, LQ-945, LQ-946, LQ-947, LQ-948, LQ-949, LQ-950, LQ-951, LQ-952, LQ-953, LQ-954, LQ-955, LQ-956, LQ-957, LQ-958, LQ-959, LQ-960, LQ-961, LQ-962, LQ-963, LQ-964, LQ-965, LQ-966, LQ-967, LQ-968, LQ-969, LQ-970, LQ-971, LQ-972, LQ-973, LQ-974, LQ-975, LQ-976, LQ-977, LQ-978, LQ-979, LQ-980, LQ-981, LQ-982, LQ-983, LQ-984, LQ-985, LQ-986, LQ-987, LQ-988, LQ-989, LQ-990, LQ-991, LQ-992, LQ-993, LQ-994, LQ-995, LQ-996, LQ-997, LQ-998, LQ-999, LQ-1000

LQ-530 Series

