

Looking For A High Power, Low Profile Power Supply?

KEPCO

Will Point You In The Right Direction!



AN ISO 9001 COMPANY

KEPCO[®]

THE POWER SUPPLIER[™]
SINCE 1946

You'll Always Find What You Need At Kepco



KLN Series Programmable Power Supply:
750W 1U, Half-Rack (top), 1500W 1U, Full Rack (middle), 3000W 2U, Full Rack (bottom)

KEPCO SERIES KLN - High Power, Low Profile, Many Models

The Kepco Series KLN is a new family of automatic crossover, low-profile, high-performance, low-cost programmable power supplies. The KLN Series offers stable d-c power in a 1U high, half-rack package for 750W, a 1U high, full-rack package for 1500W and a 2U high, full-rack package for 3000W. A total of 39 voltage-current combinations are offered. Output voltages range from 0-6 Volts to 0-600 Volts and output currents range from 0-400 Amps down to 0-1.25 Amps. Speed-controlled fans limit acoustic noise for bench-top applications when full power is not needed.

Precise programming of voltage, current and their limits may be achieved from the front panel, or by analog means or by RS 485 digital control. GPIB or LAN interfaces are factory-installed options. An EPICS driver is now available.



For more information visit
www.kepcopower.com/kln.htm

MARKETS AND APPLICATIONS

- Aerospace and Satellite Test
- Telecom and IT Industry
- Automated Test Equipment
- Factory Automation
- QC Testing
- Burn-in
- Solar
- Water Purification
- Thermal Process Control
- Chemical Processing
- Semiconductor Manufacturing
- Battery Charging and Testing
- Electroplating, Sputtering and Coating
- New Energy R&D



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750 WATTS

If you are looking for a high resolution (16 bit D/A for setting of voltage and current, 24 bit A/D for measurement), stable, quiet (speed-controlled fan) d-c power supply for your rack or bench, choose the 750W Series KLN.

Front View
1U High



Rear View



KLN 750 WATT MODEL TABLE

| MODEL (8) (9) (10) | D-C OUTPUT RANGE | | RIPPLE (3) | | LINE REGULATION (5) (11) | | LOAD REGULATION (11) | | RESPONSE TIME (7) | | | REMOTE SENSE VOLTAGE DROP (max) V |
|-----------------------|------------------|--------|------------|--------|--------------------------|----------|----------------------|----------|-------------------|----------------|--------------|--------------------------------------|
| | CV (1) | CC (2) | CV | CC (4) | CV | CC | CV (6) | CC (6) | FULL LOAD UP | FULL LOAD DOWN | NO LOAD DOWN | |
| | V d-c | A d-c | mV rms | mA rms | 0.05% +mV | 0.1% +mA | 0.05% +mV | 0.1% +mA | Sec | Sec | Sec | |
| KLN 6-100 | 0-6 | 0-100 | 10 | 180 | 2.8 | 11 | 2.8 | 23 | 0.08 | 0.05 | 0.6 | 1 |
| KLN 8-90 | 0-8 | 0-90 | 10 | 180 | 2.8 | 11 | 2.8 | 23 | 0.08 | 0.05 | 0.6 | 1 |
| KLN 12.5-60 | 0-12.5 | 0-60 | 10 | 120 | 4 | 8.5 | 4 | 18 | 0.08 | 0.05 | 0.8 | 1 |
| KLN 20-38 | 0-20 | 0-38 | 10 | 76 | 4 | 5.8 | 4 | 12.6 | 0.08 | 0.05 | 0.8 | 1 |
| KLN 30-25 | 0-30 | 0-25 | 10 | 63 | 5 | 4.5 | 5 | 10 | 0.08 | 0.08 | 0.9 | 1.5 |
| KLN 40-19 | 0-40 | 0-19 | 10 | 48 | 6 | 3.9 | 6 | 8.8 | 0.08 | 0.08 | 1 | 2 |
| KLN 50-15 | 0-50 | 0-15 | 10 | 43 | 8 | 3.6 | 8 | 8.2 | 0.08 | 0.08 | 1.1 | 2 |
| KLN 60-12.5 | 0-60 | 0-12.5 | 10 | 38 | 8 | 3.25 | 8 | 7.5 | 0.08 | 0.08 | 1.1 | 3 |
| KLN 80-9.5 | 0-80 | 0-9.5 | 10 | 29 | 10 | 2.95 | 10 | 6.9 | 0.15 | 0.15 | 1.2 | 4 |
| KLN 100-7.5 | 0-100 | 0-7.5 | 10 | 23 | 12 | 2.75 | 12 | 6.5 | 0.15 | 0.15 | 1.5 | 5 |
| KLN 150-5 | 0-150 | 0-5 | 16 | 18 | 17 | 2.5 | 17 | 6 | 0.15 | 0.15 | 2 | 5 |
| KLN 300-2.5 | 0-300 | 0-2.5 | 25 | 13 | 32 | 2.25 | 32 | 5.5 | 0.15 | 0.15 | 3 | 5 |
| KLN 600-1.25 | 0-600 | 0-1.25 | 75 | 8 | 62 | 2.13 | 62 | 5.26 | 0.25 | 0.3 | 4 | 5 |

- (1) Actual output voltage is $\leq 0.1\%$ of rated voltage when output voltage is set to zero.
- (2) Actual output current is $\leq 0.2\%$ of the rated current when output current is set to zero (resistive load).
- (3) Measured when output is within 10%-100% of rated value; ripple bandwidth: 300kHz (rms), noise bandwidth: <20MHz (p-p).
- (4) For 6V model: measured when output voltage 2-6V and rated current; all other models measured when output 10-100% of rated voltage and rated current.
- (5) Input voltage 100-240V a-c 50/60Hz, constant load.
- (6) Constant input voltage and output from no load to full load.
- (7) With rated input, resistive load output voltage changes from 10% to 90% or from 90% to 10%.
- (8) Rated power output with input 115V or 230V a-c
- (9) Specifications met after 30 minutes of operation, ambient temperature 23 \pm 5 $^{\circ}$ C, humidity under 80% R. H, a-c input voltage nominal $\pm 5\%$ of nominal, THD is 2%, not using the remote compensation, not operating in series or parallel.
- (10) Add G suffix for models with optional GPIB interface, add E suffix for optional LAN interface.
- (11) For example, the spec for KLN 6-100 line regulation and load regulation in CV mode is 0.05% + 2.8mV (or 6 x 0.0005 = +3mV +2.8mV = 5.8mV).

1500 WATTS

If you are looking for a full rack, 1U, 1500 Watt d-c power supply which runs cool in your rack (with no air gap required between units) or on your bench, choose the 1500W Series KLN.



Front View
1U High



Close up of the bus bars
with the protective cover



Rear View

KLN 1500 WATT MODEL TABLE

| MODEL (8) (9) (10) | D-C OUTPUT RANGE | | RIPPLE (3) | | LINE REGULATION (5) (11) | | LOAD REGULATION (11) | | RESPONSE TIME (7) | | | REMOTE SENSE VOLTAGE DROP (max) |
|-----------------------|------------------|--------|------------|-----------|--------------------------|-------------|----------------------|-------------|--------------------|----------------------|--------------------|--|
| | CV (1) | CC (2) | CV | CC (4) | CV | CC | CV (6) | CC (6) | FULL LOAD UP | FULL LOAD DOWN | NO LOAD DOWN | |
| | V d-c | A d-c | mV rms | mA rms | 0.05% +mV | 0.1% +mA | 0.05% +mV | 0.1% +mA | Sec | Sec | Sec | |
| KLN 6-200 | 0-6 | 0-200 | 15 | 360 | 2.8 | 18.5 | 2.8 | 38 | 0.08 | 0.05 | 0.6 | 1 |
| KLN 8-180 | 0-8 | 0-180 | 15 | 360 | 2.8 | 18.5 | 2.8 | 38 | 0.08 | 0.05 | 0.6 | 1 |
| KLN 12.5-120 | 0-12.5 | 0-120 | 15 | 248 | 3.4 | 14.5 | 4 | 28 | 0.08 | 0.05 | 0.8 | 1 |
| KLN 20-76 | 0-20 | 0-76 | 15 | 152 | 4 | 9.6 | 4 | 20.2 | 0.08 | 0.05 | 0.8 | 1 |
| KLN 30-50 | 0-30 | 0-50 | 15 | 125 | 5 | 7 | 5 | 15 | 0.08 | 0.08 | 0.9 | 1.5 |
| KLN 40-38 | 0-40 | 0-38 | 15 | 95 | 6 | 5.8 | 6 | 12.6 | 0.08 | 0.08 | 1 | 2 |
| KLN 50-30 | 0-50 | 0-30 | 15 | 85 | 7 | 5.2 | 7 | 11.4 | 0.08 | 0.08 | 1.1 | 2 |
| KLN 60-25 | 0-60 | 0-25 | 15 | 75 | 8 | 4.5 | 8 | 10 | 0.08 | 0.08 | 1.1 | 3 |
| KLN 80-19 | 0-80 | 0-19 | 15 | 57 | 10 | 3.9 | 10 | 8.8 | 0.15 | 0.15 | 1.2 | 4 |
| KLN 100-15 | 0-100 | 0-15 | 15 | 45 | 12 | 3.5 | 12 | 8 | 0.15 | 0.15 | 1.5 | 5 |
| KLN 150-10 | 0-150 | 0-10 | 24 | 45 | 12 | 3.5 | 12 | 8 | 0.15 | 0.15 | 2 | 5 |
| KLN 300-5 | 0-300 | 0-5 | 38 | 25 | 32 | 2.5 | 32 | 6 | 0.15 | 0.15 | 3 | 5 |
| KLN 600-2.5 | 0-600 | 0-2.5 | 113 | 15 | 62 | 2.26 | 62 | 5.5 | 0.25 | 0.3 | 4 | 5 |

See footnotes on 750 Watt Model Table, page 3.



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3000 WATTS

If you are looking for a 3000 Watt programmable d-c power supply that operates on single phase input with active PFC meeting EN 61000-3-2:2006 Class A standards, choose the 3000W Series KLN.

Front View
2U High



Rear View



KLN 3000 WATT MODEL TABLE

| MODEL (8) (9) (10) | D-C OUTPUT RANGE | | RIPPLE (3) | | LINE REGULATION (5) (11) | | LOAD REGULATION (11) | | RESPONSE TIME (7) | | | REMOTE SENSE VOLTAGE DROP (max) |
|-----------------------|------------------|--------|------------|-----------|--------------------------|-------------|----------------------|-------------|--------------------|----------------------|--------------------|--|
| | CV (1) | CC (2) | CV | CC (4) | CV | CC | CV (6) | CC (6) | FULL LOAD UP | FULL LOAD DOWN | NO LOAD DOWN | |
| | V d-c | A d-c | mV rms | mA rms | 0.05% +mV | 0.1% +mA | 0.05% +mV | 0.1% +mA | Sec | Sec | Sec | |
| KLN 6-400 | 0-6 | 0-400 | 23 | 1000 | 2.8 | 42 | 6.2 | 85 | 0.08 | 0.02 | 0.5 | 1 |
| KLN 8-360 | 0-8 | 0-360 | 23 | 1000 | 2.8 | 42 | 6.2 | 85 | 0.08 | 0.02 | 0.5 | 1 |
| KLN 12.5-240 | 0-12.5 | 0-240 | 23 | 800 | 3.2 | 29 | 7.1 | 60 | 0.08 | 0.1 | 0.8 | 1 |
| KLN 20-150 | 0-20 | 0-150 | 23 | 600 | 4 | 18.5 | 8 | 38 | 0.08 | 0.1 | 0.8 | 1 |
| KLN 30-100 | 0-30 | 0-100 | 23 | 310 | 5 | 13 | 9.5 | 27 | 0.08 | 0.16 | 0.9 | 1.5 |
| KLN 40-76 | 0-40 | 0-76 | 23 | 250 | 6 | 10.5 | 11 | 22 | 0.08 | 0.16 | 1 | 2 |
| KLN 50-60 | 0-50 | 0-60 | 23 | 200 | 7 | 9 | 13 | 19 | 0.08 | 0.16 | 1.1 | 2 |
| KLN 60-50 | 0-60 | 0-50 | 23 | 150 | 8 | 7.5 | 14 | 16 | 0.08 | 0.16 | 1.1 | 3 |
| KLN 80-38 | 0-80 | 0-38 | 23 | 110 | 10 | 6.2 | 17 | 13.4 | 0.15 | 0.3 | 1.2 | 4 |
| KLN 100-30 | 0-100 | 0-30 | 23 | 90 | 12 | 5.3 | 20 | 11.6 | 0.15 | 0.3 | 1.5 | 5 |
| KLN 150-20 | 0-150 | 0-20 | 36 | 90 | 17 | 4.2 | 27.5 | 9.4 | 0.15 | 0.3 | 2 | 5 |
| KLN 300-10 | 0-300 | 0-10 | 57 | 50 | 32 | 3.1 | 50 | 7.2 | 0.15 | 0.3 | 3.5 | 5 |
| KLN 600-5 | 0-600 | 0-5 | 170 | 30 | 62 | 2.55 | 95 | 6.1 | 0.25 | 0.5 | 4 | 5 |

(5) Input voltage: 190-240V a-c. 50/60Hz, constant load.

For others, see footnotes on 750 Watt Model Table, page 3.

KLN INPUT SPECIFICATIONS

| SPECIFICATION | | RATING/DESCRIPTION |
|---------------------------|---------------------------|-----------------------------------|
| Input Voltage | 750 & 1500 Watt | 100-240Vac, 50/60Hz |
| | 3000 Watt | 190-240Vac, 50/60Hz |
| Input Current (Full load) | 750 Watt | 8.1A@115V a-c; 4.1A@230V a-c |
| | 1500 Watt | 16.2A@115V a-c; 8.1A@230V a-c |
| | 3000 Watt | 15.6A@230V a-c |
| Inrush Current | 750 Watt | 12.5A@230V a-c |
| | 1500 Watt | 25A@230V a-c |
| | 3000 Watt | 50A@230V a-c |
| Power Factor (PF) Typical | 750 & 1500 Watt | 0.99 (at 115V a-c, rated output) |
| | 3000 Watt | 0.99 (at 230V a-c, rated output) |
| Efficiency | 750 Watt | 76% - 87% |
| | 1500 Watt | 77% - 88% |
| | 3000 Watt | 82% - 88% |
| Isolation Voltage | Input-Outputs | 2000V a-c: 1 minute |
| | Input-Ground | 2000V a-c: 1 minute |
| | Output-Ground (6V-150V) | 350V d-c, leakage current: 100μA |
| | Output-Ground (300V-600V) | 1200V d-c, leakage current: 100μA |



Parallel connection of two identical KLN power supplies (up to five possible) using optional Parallel Socket Board 536-0129 and Programming Port Cable 518-0119



Series connection of two identical KLN power supplies using optional Series Socket Board 536-0130 and Programming Port Cable 518-0119

KLN OUTPUT SPECIFICATIONS

| SPECIFICATION | | RATING/DESCRIPTION |
|---------------------------------|--|---|
| Type of Stabilizer | | Constant Voltage (CV)/Constant Current (CC), automatic crossover |
| Adjustment Range | Voltage | 0 to 100% of rated voltage |
| | Current | 0 to 100% of rated current |
| Protective Functions | | Programmable overvoltage (OVP) Programmable overcurrent (OCP) Overtemperature (OTP) Fuse blown |
| Protection Setting Range | Overvoltage | 0% to 110% of rated voltage |
| | Overcurrent | 0% to 110% of rated current |
| Remote Error Sense Compensation | | 5V max. (See Applicable Model Table) |
| Parallel Operation | | Up to 5 units maximum, automatic load sharing |
| Series Operation | | 2 units maximum (total voltage must not exceed 600V) |
| Temperature, Coefficient | Constant Voltage Mode Constant Current Mode | 100ppm/°C of rated output voltage or current, after 30 minute warm-up |
| Time Drift | Constant Voltage Mode Constant Current Mode | 0.05% of rated output voltage or current over 8 hrs interval following 30 minutes warm-up. Constant line, load and temperature. |
| Transient | Constant Voltage Mode | 20V and under: ≤1.5ms; |
| | | 30V-100V: ≤1ms |
| | | 150V-600V: ≤2ms |



KLN PROGRAMMING CHARACTERISTICS - LOCAL

| SPECIFICATION | | RATING/DESCRIPTION |
|--------------------------|-------------------|---|
| Local Control | | Rotary encoder |
| Setting Resolution | Voltage & Current | 4 digits |
| Display Resolution | Voltage & Current | 4 digits |
| Setting Accuracy | Voltage | $\pm 0.1\% \pm 3C^{(1)}$ at rated voltage |
| | Current | $\pm 0.5\% \pm 3C^{(1)}$ at rated current |
| Display Reading Accuracy | Voltage | $\pm 0.2\% \pm 3C^{(1)}$ at rated voltage |
| | Current | $\pm 0.5\% \pm 3C^{(1)}$ at rated current |
| Overvoltage Protection | | Programmable, 0 to 110% of rated voltage |
| Overcurrent Protection | | Programmable, 0 to 110% of rated current |

(1) C = 1 count of the last displayed digit.



Analog Interface
RS 485 Interface
(Standard)



LAN Interface
(Optional) Added



GPIB (IEEE 488) Interface
(Optional) Added

KLN PROGRAMMING CHARACTERISTICS - DIGITAL

| SPECIFICATION | | RATING/DESCRIPTION |
|--------------------------------------|---------|---|
| Command Setting Resolution | | $\pm 0.002\%$ of full scale |
| Command Readback Resolution | | $\pm 0.002\%$ of full scale |
| Command and D/A Setting Accuracy | Voltage | $\pm 0.1\% \pm 3C^{(1)}$ at rated voltage |
| | Current | $\pm 0.5\% \pm 3C^{(1)}$ at rated current |
| Command and A/D Measurement Accuracy | Voltage | $\pm 0.2\% \pm 2C^{(1)}$ at rated voltage (Average Measurement) |
| | Current | $\pm 0.5\% \pm 3C^{(1)}$ at rated current (Average Measurement) |
| Command Response Time | | $\leq 20\text{ms}$ (After received) ⁽²⁾ |
| RS-485 Digital Interface (Standard) | | Default baud rate: 115.2K Baud rates: 4.8K, 9.6K, 19.2K, 38.4K, 57.6K, 115.2K user selectable Max number of units connected to bus: 254 Max. effective control distance: 1000 meters |
| GPIB IEEE 488.2 Digital Interface | | Optional (G suffix) |
| LAN Digital Interface | | Optional (E suffix) |

(1) C = 1 count of the last displayed digit.

(2) Programming time = Command response time + Output response time. The output response time differs for different models, from 30mS ~ 200mS.

KLN PROGRAMMING CHARACTERISTICS - ANALOG

| SPECIFICATION | | RATING/DESCRIPTION |
|--|----------------------|----------------------------------|
| Analog Setting Accuracy Constant Voltage Mode (CV) | Voltage | $\pm 5\%$ |
| | Current | $\pm 5\%$ |
| Analog Setting Accuracy Constant Current Mode (CC) | Voltage | $\pm 5\%$ |
| | Current | $\pm 5\%$ |
| Analog Monitor Accuracy | Rated voltage output | $10.00\text{V} \pm 0.25\text{V}$ |
| | Zero voltage output | $0.00\text{V} \pm 0.25\text{V}$ |
| | Rated current output | $10.00\text{V} \pm 0.25\text{V}$ |
| | Zero current output | $0.00\text{V} \pm 0.25\text{V}$ |

KLN PHYSICAL SPECIFICATIONS

| SPECIFICATION | RATING/DESCRIPTION | |
|---------------------------|---|--|
| Weight | 750 Watt | 11.2 lbs (5.1 Kg) |
| | 1500 Watt | 20.3 lbs (9.2 Kg) |
| | 3000 Watt | 33.2 lbs (15.1 Kg) |
| Dimensions W x H x D | 750 Watt | 8.46" x 1.73" x 18.5" (215mm x 44mm x 470mm) |
| | 1500 Watt | 16.93" x 1.73" x 18.5" (430mm x 44mm x 470mm) |
| | 3000 Watt | 16.93" x 3.46" x 18.5" (430mm x 88mm x 470mm) |
| Source Power Connector | 750 Watt | IEC 320 inlet |
| | 1500 & 3000 Watt | 3-position terminal block |
| Load Connections | 6V to 100V models | ± bus bars with protective cover |
| | 150V to 600V models | (750W) 5-position Euroblock |
| | 150V to 600V models | (1500W & 3000W) 4-position terminal block |
| Programming Control port | 26-pin connector (mating connector supplied) | |
| SER IN port | 2-position Euroblock (mating connector supplied) | |
| Sense port | 3-position Euroblock (mating connector supplied) | |
| RS-485 port | 3-position Euroblock (mating connector supplied) | |
| LAN port (optional) | RJ 45 connector | |
| GPIB port (optional) | Standard IEEE 488.2 GPIB connector | |

KLN GENERAL (ENVIRONMENTAL) SPECIFICATIONS

| SPECIFICATION | RATING/DESCRIPTION | |
|----------------------------------|---|---|
| Temperature | Operating | 0 to 50°C (indoor use) |
| | Storage | -20 to +70°C |
| Humidity | Operating | 30%~90% RH (no condensation) |
| | Storage | 10%~90% RH (no condensation) |
| Altitude | 3000m max | |
| Cooling | Speed-Controlled Fan | |
| Acoustic Noise | <70 dB (A) | |
| EMC Emissions (EN 61326-1) | Conducted Disturbance | EN 55011:2007 + A2:2007 Class B |
| | Radiated Disturbance | EN 55011:2007 + A2:2007 Class B |
| | Harmonic Distortion | EN 61000-3-2:2006 Class A |
| | Voltage Fluctuations and Flicker | EN 61000-3-3:2008 Section 5 |
| EMC Immunity (EN 61326-1) | Electrostatic Discharge (ESD) | EN 61000-4-2:2009 Class B |
| | Radiated RF Magnetic Field | EN 61000-4-3:2006 + A1:2008 + A2:2010 Class A |
| | Electrical Fast Transients and Bursts | EN 61000-4-4:2004 + A1:2010 Class B |
| | Surge | EN 61000-4-5:2006 Class B |
| | Conducted Disturbance Induced by RF Fields | EN 61000-4-6:2009, Class A |
| | Voltage Dips and Short Interruptions | EN 61000-4-11:2004, Class C |

NOTE: All specifications apply after power on for 30 minutes, ambient temperature: 23±5°C, Humidity: under 80% RH, AC Voltage: ±5%, Frequency: ±5%.

For more information visit www.kepcopower.com/klm.htm

Looking For More High Power, Low Profile Power Supplies?

SERIES KLR



Kepeco introduces Series KLR, offering 2400 Watts of stable, controllable d-c power in the industry standard 1U package. Five models from 20 Volts to 300 Volts are available with a conventional rectangular operating area. Input is 185-264V a-c, single phase. GPIB, RS232 and isolated analog programming are all standard, LXI Ethernet is a factory installed option replacing RS232.

www.kepcopower.com/klr.htm

SERIES KLP



Using high-frequency switch-mode topology for high efficiency and small size, the KLP provides 1200 watts of well-regulated, controllable d-c power in a 1U (1.75 inch high) by 19 inch rack-mountable package. KLP replaces the need for multiple power supplies by expanding the operating region. The breakthrough of a hyperbolic power limit delivers a full 1200 Watts over an expanded operating range, not just the conventional rectangular operating area.

www.kepcopower.com/klp.htm



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