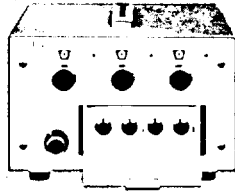


MODELS 260, 261

CALIBRATION SOURCES

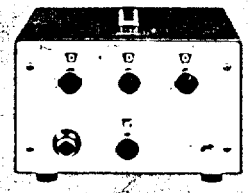
SPECIFICATIONS MODEL 260



- direct reading dials
- accuracy 0.25% to 0.75%
- nanovolt output to 0.01 nV
- full output to 1.11 volts

The Model 260 Nanovolt Source is a secondary standard for use in calibrating nanovoltmeters and microvoltmeters. It can also be used as an accurate voltage source for zero suppression and potentiometric measurements. A choice of grounding is provided for use in floating systems and for elimination of ground loops. The direct reading front panel dials and output terminals set the output voltage, positive or negative, from 1 nanovolt to 1 volt with 3-dial resolution and up to 0.25% accuracy.

SPECIFICATIONS MODEL 261



- 0.25% to 1.6% accuracy
- picoampere output to 0.01 pA
- full output to 1.1×10^{-4} A

The Model 261 Picoampere Source is a secondary standard for use in calibrating picoammeters and megohmmeters. The direct reading front panel dials set the output current, positive or negative, from 10^{-14} ampere to 10^{-4} ampere with 3-dial resolution and up to 0.25% accuracy.

A Calibration Certificate including range resistor values, thermal coefficients, and temperature and date of calibration is furnished with each Model 261. Certification traceable to the National Bureau of Standards or recalibration are also optionally available.

SPECIFICATIONS MODEL 260

OUTPUT: 10^{-8} V full range to 1.11 volts, positive or negative, in nine decade ranges.

ACCURACY:
 $\pm(0.25\%$ of setting + 0.01% of range), 10^{-3} volt to 1.11 volts
 $\pm(0.5\%$ of setting + 0.01% of range), 10^{-6} volt to 10^{-3} volt
 $\pm(0.75\%$ of setting + thermal offsets), 10^{-9} to 10^{-6} volt

LONG-TERM STABILITY: Will operate within stated accuracy for six months.

TEMPERATURE COEFFICIENT: $\pm 0.1\%/^{\circ}\text{C}$, 15°C to 30°C , on millivolt and microvolt ranges, $\pm 0.2\%/^{\circ}\text{C}$ on nanovolt ranges.

THERMAL VOLTAGES: Less than 10 nanovolts absolute when allowed to stabilize for 1 hour. Less than 2 nanovolt change during a step temperature change of 1°C .

WARM-UP TIME: 1 hour.

LINE REGULATION: 0.01% for 10% change in line voltage.

SOURCE RESISTANCE: 1ohm, 10^{-9} volt to 1.11×10^{-3} volt; 100 ohms, 10^{-3} volt to 1.11 volts.

RESOLUTION: Three significant figures from 1 nanovolt to 1.11 volts

OUTPUT ISOLATION: Low to ground: Greater than 10^9 ohms shunted by 0.001 microfarad.

CERTIFICATION: Calibration Certificate is furnished including temperature and date of calibration. Certification traceable to the National Bureau of

Standards is also available.

CONNECTORS: Output: Binding posts. Low and Ground: Binding posts.
POWER: 105-125 or 210-250 volts (switch selected), 50-60 Hz, 6 watts.
DIMENSIONS, WEIGHT: Style P, 133 mm (5 1/4 in.) half-rack, overall bench size 155 mm high x 225 mm wide x 305 mm deep (6 1/4 in. x 9 in. x 12 in.); Net weight, 4.1 kg (9 lbs.).

ACCESSORIES SUPPLIED: Model 2601 Low-Thermal Output Cable: 1.2 m (4 ft.) with copper alligator clips.

ACCESSORIES AVAILABLE: See ACCESSORIES, pages 60 through 63.)

| | |
|---|-------|
| Model 1483 Low-Thermal Connecting Kit | \$190 |
| Model 1484 Refill Kit (For Model 1483) | \$ 60 |
| Model 2601 Low-Thermal Output Cable (extra) | \$ 40 |
| Model 2602 Low-Thermal Calibration Cable | \$ 60 |
| Model 2603 Low-Thermal Calibration Cable | \$ 52 |
| Model 3004 Dual Bench Mounting Kit | \$ 35 |
| Model 4003A Rack Mounting Kit | \$ 40 |
| Model 4004A Dual Rack Mounting Kit | \$ 52 |

SERVICES AVAILABLE:

| | |
|---|-------|
| Recalibration at Keithley Standards Laboratory | \$150 |
| Certification Traceable to National Bureau of Standards | \$500 |

PRICE: (For export pricing see inside front cover.)

| | |
|---|-------|
| Model 260 Nanovolt Source (bench) | \$965 |
|---|-------|

SPECIFICATIONS MODEL 261

OUTPUT: 10^{-14} ampere (10^{-11} ampere full range) to 1.1×10^{-4} ampere, positive or negative, in eight decade ranges.

ACCURACY: Exclusive of input drop consideration.

| Range Setting | Span, ampere | Accuracy With 10.00 Setting (Ten-Volt Source Voltage) | Worst-Case With Setting Other than 10.00 |
|------------------------|-----------------------------------|---|--|
| 10^{-7} to 10^{-5} | 10^{-7} to 1.1×10^{-4} | $\pm 0.25\%$ | $\pm 0.25\%$ |
| 10^{-6} | 10^{-6} to 10^{-7} | $\pm 0.5\%$ | $\pm 0.5\%$ |
| 10^{-5} | 10^{-5} to 10^{-6} | $\pm 0.6\%$ | $\pm 0.8\%$ |
| 10^{-4} | 10^{-4} to 10^{-5} | $\pm 0.6\%$ | $\pm 1.1\%$ |
| 10^{-3} | 10^{-3} to 10^{-4} | $\pm 0.6\%$ | $\pm 1.3\%$ |
| 10^{-2} | 10^{-2} to 10^{-3} | $\pm 0.7\%$ | $\pm 1.6\%$ |
| 10^{-1} | 10^{-1} to 10^{-2} | — | $\pm 2.0\%$ |

LONG-TERM STABILITY: Will operate within stated specifications for three months after calibration. After three months add 0.15% per month for 10^{-8} through 10^{-12} ampere range setting accuracy specification.

TEMPERATURE COEFFICIENT: $\pm 0.1\%/^{\circ}\text{C}$, 15°C to 30°C on 10^{-7} to 10^{-5} ampere range settings. Approximately $-0.1\%/^{\circ}\text{C}$ on 10^{-12} to 10^{-8} ampere range settings. Exact value for these ranges supplied with instrument.

WARM-UP TIME: 1 hour.

LINE REGULATION: 0.01% for 10% change in line voltage.

SOURCE VOLTAGE: 0 to 11 volts in 0.01-volt steps.

RESOLUTION: 3 significant figures from 10^{-12} ampere to 1.1×10^{-4} ampere.

RANGE RESISTORS: 10^5 to 10^{12} ohms in decade steps; $\pm 5\%$

RANGE RESISTOR ACCURACY: Value given on certificate.
 $\pm 0.5\%$; 10^9 to 10^{12} ohms $\pm 0.1\%$; 10^7 to 10^8 ohms $\pm 0.02\%$; 10^5 ohms.

OUTPUT ISOLATION: Low to ground: greater than 10^9 ohms shunted by 0.001 microfarad.

CERTIFICATION: A Calibration Certificate is furnished including range resistor values, thermal coefficients, temperature and date of calibration. Certification traceable to the National Bureau of Standards is also available.

POWER: 105-125 or 210-250 volts (switch selected), 50-60 Hz, 6 watts.

CONNECTORS: Output: Teflon-insulated UHF type. Low and Ground: Binding posts.

DIMENSIONS, WEIGHT: Style P, 133 mm (5 1/4 in.) half-rack overall bench size 155 mm high x 225 mm wide x 305 mm deep (6 1/4 in. x 9 in. x 12 in.); Net weight, 3.8 kg (9 lbs.).

ACCESSORIES SUPPLIED: Model 2611 Test Cable, 0.6 m (2 ft.) long with 2 male UHF connectors.

ACCESSORIES AVAILABLE: (See ACCESSORIES, pages 60 through 63.)

| | |
|--|-------|
| Model 2611 Test Cable (extra) | \$ 40 |
| Model 2612 Calibration Cable | \$125 |
| Model 3004 Dual Bench Mounting Kit | \$ 35 |
| Model 4003A Rack Mounting Kit | \$ 40 |
| Model 4004A Dual Rack Mounting Kit | \$ 52 |

SERVICES AVAILABLE:

| | |
|---|-------|
| Recalibration at Keithley Standards Laboratory | \$150 |
| Certification Traceable to National Bureau of Standards | \$500 |

PRICE: (For export pricing see inside front cover.)

| | |
|---|-------|
| Model 261 Picoampere Source (bench) | \$965 |
|---|-------|