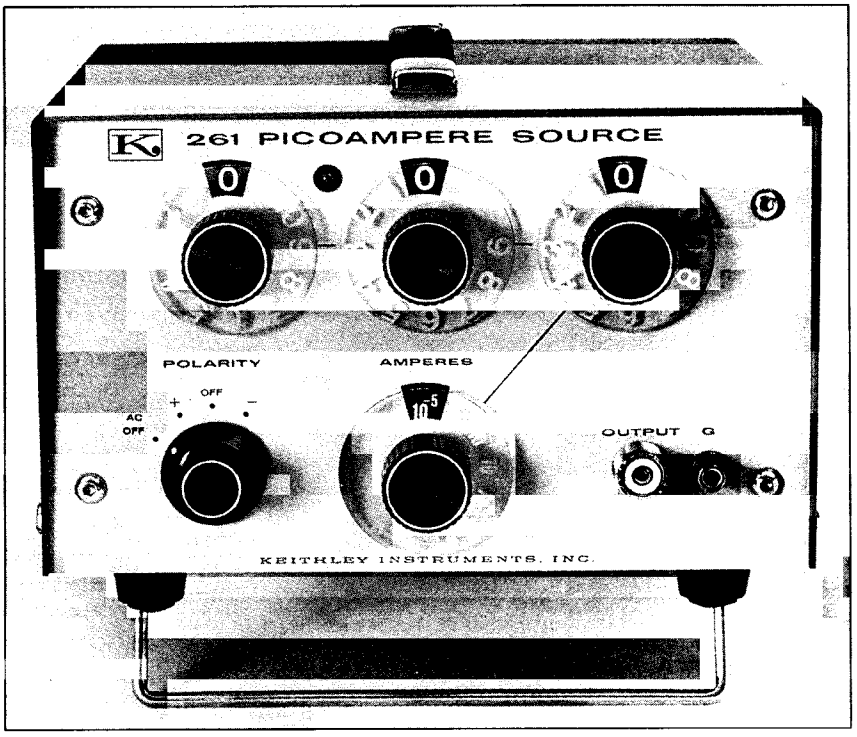
# 261 • PICOAMPERE SOURCE

- **Output from $10^{-14}$A to $1.1 \times 10^{-4}$A**
- **±0.25% accuracy at $10^{-7}$A, ±0.7% at $10 \times 10^{-12}$A**
- **Secondary calibration standard**




The Model 261 Picoampere Source is a secondary standard for calibration of picoammeters and electrometers. It is a "passive" source, consisting of a selectable 0 to 10V voltage in series with a specially selected and tested hi-meg resistor.

Current output is $10^{-14}$A to $1.1 \times 10^{-4}$A. Accuracy varies from ±(0.25% + 1 count) on $10^{-7}$ and higher ranges to ±(1.6% + 1 count) on the $10^{-11}$ range. Long term stability is better than ±0.15% per month (typically ±0.05% to ±0.1% per month) on the most sensitive ranges, beyond three months after calibration. Calibration maintains stated accuracy for three months.

The 261 may also be used as a decade resistance standard, having ±0.02% accuracy at $10^5\Omega$, ±0.1% accuracy at $10^6$ and $10^7\Omega$, and ±0.5% accuracy at $10^8$ through $10^{12}\Omega$.

The characterization of the hi-meg resistors is based on a 10-year Keithley program of collecting data on these components, and on individual time stability measurements of each resistor.

A calibration certificate including range resistor values, temperature coefficients, and temperature and date of calibration is furnished with each Model 261. Certification traceable to the National Institute of Standards and Technology and recalibration are also optionally available.

| ORDERING INFORMATION | |
|---|---|
| **261** | Picoampere Source with Model 2611 Test Cable |

**OUTPUT:** $10^{-14}$A ($10^{-11}$A full range) to $1.1 \times 10^{-4}$A, positive or negative, in eight decade ranges.

**ACCURACY:** Exclusive of input drop consideration:

| RANGE SETTING | SPAN, AMPERE | ACCURACY WITH 10.00 SETTING (10V SOURCE VOLTAGE) | WORST-CASE WITH SETTING OTHER THAN 10.00* |
|---|---|---|---|
| $10^{-7}$ to $10^{-5}$ | $10^{-7}$ to $1.1 \times 10^{-4}$ | ±0.25% | ±0.25% |
| $10^{-8}$ | $10^{-8}$ to $10^{-7}$ | ±0.5 % | ±0.5 % |
| $10^{-9}$ | $10^{-9}$ to $10^{-8}$ | ±0.6 % | ±0.8 % |
| $10^{-10}$ | $10^{-10}$ to $10^{-9}$ | ±0.6 % | ±1.1 % |
| $10^{-11}$ | $10^{-11}$ to $10^{-10}$ | ±0.6 % | ±1.3 % |
| $10^{-12}$ | $10^{-12}$ to $10^{-11}$ | ±0.7 % | ±1.6 % |
| $10^{-12}$ | $10^{-14}$ to $10^{-12}$ | — | ±2.0 % |

*All accuracies are ± the percentage given, ±0.01 × range switch setting.

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

**TEMPERATURE COEFFICIENT:** ±0.1%/°C from 15°C to 30°C on $10^{-7}$ to $10^{-5}$A range settings. Approximately 0.15%/°C on $10^{-12}$ to $10^{-8}$A range settings. Exact values for these ranges supplied with instrument.

**WARM-UP TIME:** 1 hour.

**LINE REGULATION:** 0.0001% for 10% change in line voltage.

**SOURCE VOLTAGE:** 0.00 to 11V in 0.01V steps.

**RESOLUTION:** 3 significant figures from $10^{-12}$A to $1.1 \times 10^{-4}$A.

**RANGE RESISTORS:** $10^5$ to $10^{12}\Omega$ in decade steps; ±5%.

**RANGE RESISTOR ACCURACY:** Value with power on, given on certificate.
±0.5 %: $10^8$ to $10^{12}\Omega$
±0.1 %: $10^7$ to $10^6\ \Omega$
±0.02%: $10^5\Omega$.

**OUTPUT ISOLATION:** Low to ground: $>10^9\Omega$ shunted by 0.001µF.

**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:** 105–125V or 210–250V (switch selected), 50–60Hz, 6W.

**DIMENSIONS, WEIGHT:** 155mm high × 225mm wide × 300mm deep (6.25 in. × 9 in. × 12 in.). Net weight 4.1kg (9 lbs.).

**ACCESSORY SUPPLIED:** Model 2611 Test Cable.

See page 143 for descriptions of test leads, cables, and rack mount accessories.



See page 241 for complete Ordering Information.