263 Calibrator/Source

AMPS V/R (Passive)

RANGE	STEP SIZE	ACCURACY ±(% setting + offset) 18°–28°C 90 Days	ACCURACY ±(% setting + offset) 18°–28°C 1 Year	TEMPERATURE COEFFICIENT ±(% setting + offset)/°C 0°–18°C & 28°–50°C	OUTPUT RESISTANCE
2 pA	50 aA	0.375 + 10 fA	0.425 + 10 fA	0.04 + 2 fA	100 GΩ
20 pA	500 aA	0.325 + 10 fA	0.375 + 10 fA	0.04 + 2 fA	100 GΩ
200 pA	5 fA	0.20 + 30 fA	0.25 + 30 fA	0.01 + 2 fA	10 GΩ
2 nA	50 fA	0.0625 + 100 fA	0.065 + 100 fA	0.01 + 30 fA	1 GΩ
20 nA	500 fA	0.0625 + 1 pA	0.065 + 1 pA	0.0035 + 100 fA	100 MΩ
200 nA	5 pA	0.035 + 10 pA	0.035 + 10 pA	0.0025 + 1 pA	10 MΩ
2 µA	50 pA	0.025 + 100 pA	0.025 + 100 pA	0.0025 + 10 pA	1 MΩ
20 µA	500 pA	0.025 + 1 nA	0.025 + 1 nA	0.0025 + 100 pA	100 kΩ
200 µA	5 nA	0.025 + 10 nA	0.025 + 10 nA	0.0025 + 1 nA	10 kΩ
2 mA	50 nA	0.025 + 100 nA	0.025 + 100 nA	0.0025 + 10 nA	10 kΩ
20 mA	500 nA	0.15 + 1 µA	0.15 + 1 µA	0.0025 + 100 nA	1 kΩ

Assumes <100µV compliance (voltage burden).

COULOMBS V/R (Passive)

RANGE	STEP SIZE	ACCURACY ±(%setting + offset) 18°–28°C 1 Year	TEMPERATURE COEFFICIENT ±(% setting + offset)/°C 0°–18°C & 28°–50°C	OUTPUT RESISTANCE
20 pC	0.5 fC	1.0 + 50 fC	0.05 + 10 fC	100 GΩ
200 pC	5 fC	0.5 + 75 fC	0.01 + 10 fC	10 GΩ
2 nC	50 fC	0.1 + 300 fC	0.01 + 10 fC	1 GΩ
20 nC	500 fC	0.1 + 3 pC	0.01 + 100 fC	100 MΩ
200 nC	5 pC	0.5 + 30 pC	0.01 + 1 pC	10 MΩ
2 µC	50 pC	0.5 + 300 pC	0.01 + 10 pC	1 MΩ
20 µC	500 pC	0.5 + 3 nC	0.01 + 100 pC	100 kΩ

Measurement interval is 2.5 seconds.
Assumes <100µV of compliance (voltage burden).

COULOMBS (Active)

Accuracy is the same as COULOMBS V/R, except change the offset to 300fC on the 20pC and 200pC ranges.

VOLTS

RANGE	STEP SIZE	ACCURACY[1] ±(%setting + offset) 18°–28°C 90 Days	ACCURACY[1] ±(%setting + offset) 18°–28°C 1 Year	TEMPERATURE COEFFICIENT ±(% setting + offset)/°C 0°–18°C & 28°–50°C
200 mV	5 µV	0.0125 + 15 µV	0.0175 + 15 µV	0.002 + 0.5 µV
2 V	50 µV	0.0125 + 50 µV	0.0175 + 50 µV	0.002 + 2 µV
20 V	500 µV	0.0125 + 500 µV	0.0175 + 500 µV	0.002 + 20 µV

[1]Load resistance >100kΩ.

RESPONSE TIME: <0.5 second to rated accuracy.

OUTPUT RESISTANCE: <1Ω.

SHORT CIRCUIT CURRENT LIMIT: <75mA.

NOISE: <25ppm of range peak to peak in a 0.1Hz to 10Hz bandwidth.

IEEE-488 BUS IMPLEMENTATION

MULTILINE COMMANDS: DCL, LLO, SDC, UNL, UNT, GTL.

UNILINE COMMANDS: REN, ATN, EOI, IFC, SRQ.

INTERFACE FUNCTIONS: SH1, AH1, T6, TE0, L4, LE0, SR1, RL0, PP0, DC1, DT0, C0, E1.

PROGRAMMABLE PARAMETERS: Function, Range, Value, Zero, Operate, Guard, Digital Calibration, Temperature Compensation, Terminator, Status, Data Format, SRQ.

Specifications are subject to change without notice.

AMPS (Active)

Accuracy is the same as Amps V/R, except change the % setting on the 20mA range to 0.035% and change the offsets per the following table:

RANGE	ACCURACY ± offset	TEMPERATURE COEFFICIENT ± offset/°C
2 pA	100 fA	30 fA
20 pA	100 fA	30 fA
200 pA	120 fA	30 fA
2 nA	200 fA	No change

OUTPUT RESISTANCE: $>10^{14}\Omega$.

OUTPUT CAPACITANCE: <50pF.

OUTPUT LOAD: Output load must be non-inductive.

COMPLIANCE VOLTAGE: >12V. Front panel OPERATE light flashes when compliance is reached.

MAXIMUM OPEN CIRCUIT VOLTAGE: <45V for the 2mA and 20mA ranges; <25V for the 2pA–200µA ranges.

RESPONSE TIME: <0.5 second to rated accuracy for the 2nA–20mA ranges; <5 seconds for the 2pA–200pA ranges.

PREAMP OUTPUT: **Maximum Load Current:** 5mA.
Maximum Load Capacitance: 10nF.

OHMS

NOMINAL VALUE	ACCURACY ±(% setting) 18°–28°C 90 Days	ACCURACY ±(% setting) 18°–28°C 1 Year	TEMPERATURE COEFFICIENT ±(% setting/°C) 0°–18°C & 28°–50°C
1 kΩ	0.04[1]	0.04[1]	0.0005
10 kΩ	0.02[1]	0.02[1]	0.0005
100 kΩ	0.02	0.02	0.0005
1 MΩ	0.025	0.025	0.0005
10 MΩ	0.035	0.0375	0.0015
100 MΩ	0.065	0.07	0.0015
1 GΩ	0.08	0.10	0.008[2]
10 GΩ	0.20	0.225	0.008[2]
100 GΩ	0.375	0.40	0.04[2]

[1] After subtracting ZERO offset.

[2] Displayed value corrected for resistor temperature coefficient.

ZERO OFFSET: <1Ω.

TOLERANCE OF NOMINAL VALUE: 1kΩ–1MΩ, 0.1%; 10MΩ, 0.2%; 100MΩ–100GΩ, 3%.

MAXIMUM VOLTAGE ACROSS RESISTANCE FOR RATED ACCURACY: 1kΩ–10GΩ, 20V; 100GΩ, 100V.

GENERAL

DISPLAY: 5½-digit numeric LEDs with appropriate decimal point and polarity indication; signed two-digit alphanumeric exponent.

OUTPUT CONNECTIONS: Two-lug triaxial connector for output; five-way binding posts for PREAMP OUT, COMMON, and EXT INPUT. All connections on rear panel.

PROGRAMS: Menu provides front panel access to IEEE-488 address, Alpha or Numeric Exponent, Digital Calibration, and Temperature Compensation selection.

MAX. COMMON MODE VOLTAGE (DC to 60Hz sinewave): 350V peak.

ISOLATION (Common to Chassis): $>10^{10}\Omega$ paralleled by <500pF.

EXT INPUT: Max. Input: 200V peak, 100mA peak.
Series Resistance: <1Ω.

WARM-UP: 1 hour to rated accuracy.

ENVIRONMENT: Operating: 0°–50°C; <70% RH non-condensing, up to 35°C. **Storage:** –25° to +65°C.

POWER: 105–125V or 210–250V (rear panel switch selected), 90–110V available, 50–60Hz, 25VA maximum.

DIMENSIONS, WEIGHT: 127mm high × 216mm wide × 359mm deep (5 in × 8½ in × 14⅛ in). Net weight 3.6kg (8.1 lbs).

ACCESSORY SUPPLIED: Model 7024-3 Triax Cable.