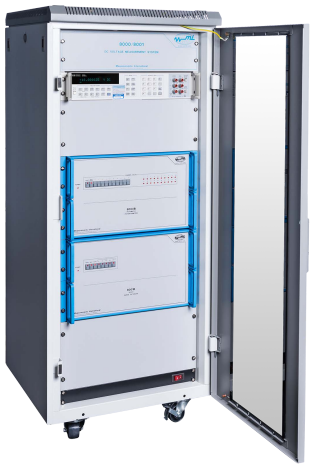
Measurements International

Metrology is Our Science, Accuracy is Our Business™

8000C/8001C AUTOMATED POTENTIOMETER BINARY VOLTAGE DIVIDER

Developed & designed by metrologists for metrologists & calibration technicians



Featuring

- Intrinsically Accurate Self-Calibrating Ratio Divider
- Best Accuracy < 0.05 ppm
- Built-in 20-Channel Scanner
- Arbitrary Voltages from 1 mV to 1200 V
- Bi-polar Voltage Measurements
- Calibration of Fluke 5700A/5720A
- Calibration of 3458A and 8508A
- Calibration of Voltage Ratio Dividers (F752A, MI 1340A, G7520)
- Linearity Calibration of Digital Volt Meters (DVM)
- Traceability to 10 V Zener Reference

Overview

The Automated Voltage Divider System is a highly versatile, accurate, self-balancing ratio instrument that meets laboratory requirements for scaling between a Josephson-calibrated 10 V reference and any voltage between 1 mV to 1200 V. Automatic self-calibration ensures ratios to nine significant digits with linearity deviations of < 0.02 ppm. The Automated Voltage Divider System consists of the MI model 8000C Binary Voltage Divider with a voltage range from 1 mV to 10 V and the model 8001C with a range from 10 V to 1200 V. A 10 V source, a detector and a 10 V reference for traceability completes the system. The model 8000C with its “built-in” 20-channel scanner can be used to measure up to twenty 10 voltage references automatically. The model 8001C has 5 input ranges. Both units are controlled via the MI 8000C operating software for performing automatic measurements.

Feature	Benefit
Automated self-calibration.	Does not require sending out for calibration.
Bi-polar voltage measurements.	Allows for automatic + and - voltage measurements against + 10 V reference.
Built-in 20-channel scanner.	Allows for automation of multiple UUT’s without connection changes to minimize thermal effects.
Standard cell protection.	Protects references against accidentally shorting or loading.
Calibration of 57XXA.	Automated characterization of Fluke 5700A/5720A/5703A voltage output.
Calibration of DMM’s.	Can characterize the Voltage Linearity of Reference Multimeters like 3458A and 85X8A.
1 mV to 1200 V DC range.	Enough range to calibrate all voltage calibrators without reconfiguring connections.
Voltage maintenance.	Ideally suited to calibrate and intercompare 10 V Zener references.
Low uncertainties.	8000C – 0.05×10^{-6} for 10 V vs. 10 V measurements. 8001B – 1×10^{-6} for up to 1200 V.

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Specifications: Rev 4

	8000C	8001C
Automatic Self-Calibration	Completely Self-Checking	Completely Self-Checking
Ranges	1 mV to 10 V (Single Continuous)	30 V, 120 V, 300 V, 1200 V
Accuracy **K=2** *** We have attempted to include all reasonable considerations for our uncertainty budgets but your uncertainty budgets should be re-assessed considering your environment, operating conditions and metrological needs. As this is a ratio device, the results that we show can easily be improved upon.** **** Lower Voltages, e.g. 100 mV, 10 mV, 1 mV the resolution of the DMM (Detector) becomes the dominant uncertainty.**	1 mV: $< 200 \times 10^{-6}$ 10 mV: $< 50 \times 10^{-6}$ 100 mV: $< 5 \times 10^{-6}$ 1 V: $< 0.5 \times 10^{-6}$ 10 V: $< 0.05 \times 10^{-6}$	30 V: $< 0.1 \times 10^{-6}$ 120 V: $< 0.2 \times 10^{-6}$ 300 V: $< 0.5 \times 10^{-6}$ 1200 V: $< 1 \times 10^{-6}$
Insulation Resistance	$> 10^{11}\ \Omega$	$> 10^{11}\ \Omega$
Effective Linearity	< 0.02 ppm of Full-Scale (Full-scale 1 V, 10 V)	< 0.02 ppm of Full-Scale
Long-Term Drift	N/A – Corrected by Self-Calibration	N/A – Corrected by Self-Calibration
Short-Term Drift	Dependant on Drift of Source and Environmental Conditions	Dependant on Drift of Source and Environmental Conditions
Input Impedance	40 kΩ	4.8 MΩ Maximum
Output Impedance	100 kΩ	40 kΩ
Operating Environment	18 to 34 °C, 10 to 80 % RH	18 to 34 °C, 10 to 80 % RH
Storage Environment	-5 °C to 40 °C, 95 % Non-condensing	-5 °C to 40 °C, 95 % Non-condensing
Warranty	2 Years Parts & Labour	2 Years Parts & Labour

How to Order

1. Model 8000C – Binary Voltage Divider
2. Model 8001C – 1200 V Range Extender

Accessories

8000C Ratio Verification Box
10 V Reference 1330A or 732C
Detector 3458A

Dimensions (L × W × H):
1400 × 940 × 686 (mm)
(Full System)

Weight:
180 kg (Full System)

Shipping Weight:
215 kg (Full System)

Main Power:
100 V_{ac}-240 V_{ac} – 50/60 Hz
10 VA Max. (8000C)
6 VA Max. (8001C)

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