



ACCUBRIDGE® 6020Q QUANTUM HALL RATIO/RESISTANCE BRIDGE

Quantum Hall Ratio/Resistance Bridge



Featuring

- ▶ Range 0.1 Ω to 13 k Ω
- ▶ Best Accuracy < 0.015 $\mu\Omega/\Omega$
- ▶ NEW Current Algorithm following CCC methodology.
- ▶ NEW Zero-filter option
- ▶ NEW Microcontroller
- ▶ NEW Capacitive touchscreen and user interface
- ▶ Quantum Hall Applications Including Gallium Arsenide and Graphene Sample Measurements
- ▶ Vcr, Vxx, and Vxy Measurements
- ▶ Self-calibration of the Binary Wound Current Comparator (27-bit) plus Nanovolt
- ▶ Detector Reading
- ▶ Maximum Ratio 14:1
- ▶ Capacitive 7" Touchscreen
- ▶ IEEE-488.2 standard

| Feature | Benefit |
|-------------------------------------|---|
| DCCT based. | Provides excellent stability and range linearity. |
| Vcr, Vxx and Vxy measurements. | Supports dissipation and contact resistance checks. |
| Accuracy < 0.015 $\mu\Omega/\Omega$ | Allows sub-ppm high-stability measurements. |
| Maximum Ratio 14:1 | Wide ratio range to cover laboratory standards and $R_K/2$ |
| National lab continuity. | The only commercially available QHR resistance bridge used in primary or national laboratories worldwide. |
| Full DCC resistance range. | 0.1 Ω to 13 k Ω . |
| Stable low currents. | 1 μA to 200 mA ensures ultra-low noise measurements. |



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Specifications: Rev 9

| Resistance Measurement 0.1 Ω to 13 kΩ | | | |
|---------------------------------------|--------------------|--------------------|--------------------|
| Range (1:1 Ratio) | Uncertainty (μΩ/Ω) | Range (1:10 Ratio) | Uncertainty (μΩ/Ω) |
| 0.1 Ω to 0:1 Ω | 0.15 | 0.1 Ω to 1 Ω | 0.1 |
| 1 Ω to 1 Ω | 0.015 | 1 Ω to 10 Ω | 0.015 |
| 10 Ω to 10 Ω | 0.015 | 10 Ω to 100 Ω | 0.015 |
| 100 Ω to 100 Ω | 0.015 | 100 Ω to 1 kΩ | 0.015 |
| 1 kΩ to 1 kΩ | 0.015 | 1 kΩ to 10 kΩ | 0.015 |
| 10 kΩ to 10 kΩ | 0.5 | 1 kΩ to 12.9 kΩ | 0.015 |

- As a ratio device the accuracy specifications can be improved upon based on your standards and environmental conditions.
- Ratio bridge where the ratio accuracies can be verified at anytime using the interchange technique method for 1:1 ratio measurements with the following equation $r_e = (R_a - 1/R_b)/2$
- Uncertainties follow GUM at 2 sigma level (95%) along with the degrees of freedom

| | |
|--------------------------------|---|
| Measurement Mode | 4-wire |
| Linearity | < 0.005 x 10 ⁻⁶ of full-scale |
| Operating Conditions | 10 °C to 35 °C, 10 % to 90 % RH non-condensing |
| Test Current Range | 1 μA to 200 mA |
| Test Current Resolution | 18-bit |
| Interface | IEEE-488 |
| Display | Touchscreen display (no external keyboard), resolution 0.001 x 10 ⁻⁶ |

Dimensions (L × W × H):
438 × 406 × 267 (mm)

Weight:
19 kg

Shipping Weight:
23 kg

Mains Power:
100 V_{ac} / 120 V_{ac} / 220 V_{ac} / 240 V_{ac}
50/60 Hz
200 VA (maximum)

Corporate Headquarters
Measurements International
PO Box 2359, 118 Commerce Drive
Prescott, Ontario, Canada K0E 1T0
Phone: 613-925-5934
Fax: 613-925-1195
Email: sales@mintl.com
Toll Free: 1-800-324-4988

