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^{Discover The} "BLUE BOX" DIFFERENCE

Nen!

AccuBridge[®] Resistance Bridges Products Guide

Measurements Internation

Measurements International Metrology is Our Science, Accuracy is Our Business™

The Metrologist's Choice......

AccuBridge 6020Q

6010D

AccuBridge 6242B Resistance Bridge

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From National Measurement Institutes to government, industrial and commercial primary labs worldwide, MI bridges are the preferred choice. The performance, accuracy, and speed of resistance measurements in applications ranging from micro-ohms to peta-ohms set MI bridges apart from all others.

The Proven and Best Technology......

Developed from the best research done by National Measurement Institutes, the Measurements of MI's bridges are unmatched by any other commercial instrumentation. Offering the best uncertainties available, with repeatability and reliability. MI bridges help labs attain the best accredited performance available.

Measurement Confidence

Proper techniques provide the best measurements. MI's bridges individually use the best measurement techniques appropriate to span measurements over 21 decades of resistance. Employing Direct Current Comparator, Dual Source Bridge, and Binary Voltage Divider technologies, you can make the best measurements with confidence

A Bridge To Fit Your Specific Needs

One of MI's AccuBridge[®] line of bridges will provide a solution exactly to fit your needs. Whether it is a measurement of a Quantum Hall Resistance with an uncertainty of better than 20 parts in 10⁻⁹ or a Peta ohm measurements at 1%, an AccuBridge[®] will do your job as you need it to, every time.

Metrology is our Science, Accuracy is Our Business ™

Measurements International (MI) is the world's premier metrology company. MI provides innovative Standards Technology for both the Metrology and AC Power Industries. For the Metrology industry MI designs, develops, and manufactures electrical and temperature metrology instruments using AccuBridge[®] technology. For the AC power industry MI designs, develops and manufactures high-voltage transformer test instruments, capacitance/Inductance Bridges, voltage dividers, wattmeters and current transformers using the AccuLoss[™] and two-stage-compensated current transformers. All instruments are manufactured with the highest quality in support of our customer's organization.

The MI line of AccuBridge[®] resistance bridges offer users world class uncertainties while maintaining the useability that is familiar to National Measurement Institutes all over the world. No other resistance bridge can claim the Metrologist's Choice...!



				Rat
006		Resistance (Ω) ▲	<u>Rs</u> 100 Ω	K
006 # Ra 29 .9 30 .9	tio 999998943 999998949	Resistance (Ω) 99.99998943 99.99998949	Rs 100 Ω Is -9.9976 mA	K Sar

AccuBridge® 6010D

AUTOMATED PRIMARY RESISTANCE BRIDGE

Measurements International

AccuBridge[®] 6020Q Automated Resistance Bridge

- Accuracy 15 ppb
- Maximum Ratio: 14:1
- Resolution: 1 ppb
- AccuBridge[®] Technology
- Automatic and Manual Operation
- Not affected by Temperature change
- English and Chinese operating systems

AccuBridge[®] 6010D Automated Resistance Thermometry Bridge

- Accuracy < 40ppb**
- Resolution: 1 ppb
- AccuBridge®
- Ratio, Resistance and Temperature
- Touch Screen and Software Operation
- Not affected by Temperature change
- English and Chinese operating systems

AccuBridge[®] 6242D Automated Resistance Bridge

- Accuracy 0.1 ppm
- Maximum Ratio: 14:1
- Resolution: 1 ppb
- AccuBridge[®] Technology
- Automatic and Manual Operation
- Not affected by Temperature change
- English and Chinese operating systems

AccuBridge®

Old Technology meets New technology to form the the worlds leading Accurate Resistance Technology

AccuBridge[®] technology is at the core of all MI bridge design. It incorporates our entire design philosophy, which is to develop the most advanced technological solutions without any of the tricks or shortcuts found elsewhere. This next generation of bridges are built around the existing bridge architechure but also incorporating the latest technology advancements (AccuBridge[®] Design) and methods to improve noise, speed, accuracy and overall performance. Simply stated...... Trust AccuBridge[®] for your measurement needs!

AccuBridge[®] 6000B Automated Primary Resistance Bridge

- Accuracy 0.1 ppm
- Maximum Ratio: 14:1
- Resolution: 1 ppb
- AccuBridge[®] Technology
- Automatic and Manual Operation
- Not affected by Temperature change
- English and Chinese operating systems

AccuBridge[®] 6650A Dual Source High Resistance Meter

- Range: $100k\Omega$ to $1P\Omega$
- Maximum Ratio: 100:1
- 10V-1000V Variable Output
- AccuBridge[®] Technology
- Live Ratio or Direct Measurement Mode
- Voltage and Current Measurements
- English and Chinese operating systems

AccuBridge[®] 6600A Dual Source High Resistance Bridge

- Range: $100k\Omega$ to $10P\Omega$
- Maximum Ratio: 100:1
- 10V-1000V Variable Output
- AccuBridge[®] Technology
- Live Ratio or Direct Measurement Mode
- Voltage and Current Measurements
- English and Chinese operating systems

Main Men										
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Start Measuremen	System & Rack	Resistor ID	Progr	am Measu	rement	File & Directory Setun	History	Diagnostic		
PPM Resistance Measurements										
rrm resistance medsulefilefits										
	0.027 -									
Print Graph										
	-0		1	21		26	31			
√2	-0.027									
1//2	0.054									
./* Z	-0.054									
F	1 mean: 9.99999	677 Ratio unc	ert. (95%)	[ppm]: 0.0043	R max	[ppm]: 0.009	R min [ppm]:	: -0.025		
Ratio	' Rean: 9.99999	677 Ratio_unc	ert. (95%)	[ppm]: 0.0043	R_max	[ppm]: 0.009	R_min [ppm]:	: -0.025		
Ratio 27 9.9998384	2 9.3	677 Ratio_unc sistance	ert. (95%)	[ppm]: 0.0043 Resistor Informa	R_max	[ppm]: 0.009 Operation Infor	R_min (ppm): mation Meas	: -0.025 surement Information		
Ratio 27 9.9998384 28 9.9998384	R_mean: 9.999999 Re 2 9.9 1 9.1	677 Ratio_unc sistance 99999666 99999665	ert. (95%)	(ppm): 0.0043 Resistor Informa	R_max ation	[ppm]: 0.009 Operation Infor	R_min (ppm): mation Meas	urement Information		
Ratio 7 9.9996384 8 9.9996384 9 9.9996383	R_mean: 9.99999 Re 2 9.1 1 9.1 9 9.1	677 Ratio_unc sistance 99999686 99999685 99999682	ert. (95%)	(ppm): 0.0043 Resistor Informs Rs [R_max ation mR9	[ppm]: 0.009 Operation Infor	R_min (ppm): mation Meas	: 0.025 surement Information mR1		
Ratio 7 9.9998384 18 9.9998384 19 9.9998383 10 9.9998383	R_mean: 9.99999 Re 2 9.1 1 9.1 9 9.1 8 9.1	677 Ratio_unc isistance 39999686 39999685 39999682 39999681	ert. (95%)	(ppm): 0.0043 Resistor Informa Rs (Type	R_max ation mR9 Absolu	[ppm]: 0.009 Operation Infor < Standar	R_min [ppm]: mation Meas d Rx [Type	: 0.025 surement Information mR1 Value		
Ratio 7 9.9996364 26 9.9996363 29 9.9996363 30 9.9996363 31 9.9996363 31 9.9996363	R_mean: 9.99999 Re 2 91 1 91 9 91 8 91 7 91	677 Ratio_unc isistance 39999666 39999685 39999682 39999681 39999681	ert. (95%)	(ppm): 0.0043 Resistor Informa Rs (Type Resistor	R_max ation mR9 Absolu 1.000	[ppm]: 0.009 Operation Infor	R_min [ppm]: mation Meas d Rx [Type Resistor	urement Information mR1 Value 9.99999677		
Ratio 7 9.9996384 8 9.9996384 9.9996383 0 9.9996383 0 9.9996383 1 9.9996383 1 9.9996383 2 9.9996383	R_mean: 9.99999 2 9.1 1 9.9 9 9.1 8 9.1 7 9.3 3 9.4	677 Ratio_unc sistance 39999686 39999685 39999685 39999681 39999681 39999681 39999677	ert. (95%)	(ppm): 0.0043 Resistor Informa Rs [Type Resistor	R_max ation mR9 Absolu 1.000	[ppm]: 0.009 Operation Infor < Standar Ite Value 015844 Fiol #	R_min [ppm]: mation Meas d Rx [Type Resistor	: 0.025 		
Ratio 27 9.9996384 9.9996384 9.9996383 0.9.9986383 1.9.9986383 1.9.9986383 2.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986383 3.9.9986384 3.9.99986384 3.9.9986384	R_mean: 9.99999 Re 2 9.1 1 9.1 9 9.1 8 9.1 7 9.1 3 9.1 0 9.1	677 Ratio_unc sistance 39999686 39999685 39999682 39999681 39999677 39999674	ert. (95%)	[ppm]: 0.0043 Resistor Informa Rs [Type Resistor Max I(A)	R_max ation mR9 Absolu 1.000 Se	[ppm]: 0.009 Operation Infor < Standar Ite Value 015844 rial #	R_min [ppm]: mation Meas d Rx [Type Resistor Max. I (A)	: 0.025 		
Ratio 27 9.9996384 28 9.9996384 29 9.9986383 20 9.9996383 21 9.9996383 22 9.9996383 23 9.9996383 24 9.9996383 25 9.9996383 26 9.9996383 27 9.9996383 28 9.9996383 29 9.9996383 29 9.9996383 20 9.9996383	R_mean: 9.999999 2 9.0 1 9.1 9 9.4 7 9.3 0 9.4 0 9.4	677 Ratio_unc sistance 99996666 99996685 99996682 99996681 9999667 9999677 99999674 99999674	ert. (95%)	[ppm]: 0.0043 Resistor Informa Res Type Resistor Max. I(A) 0.15	R_max attion mR9 Absolu 1.000 Se 103	[ppm]: 0.009 Operation Infor] < Standar Ite Value 015844 rial # 31203 [R_min [ppm]: mation Meas d Rx [Type Resistor Max. I (A) 0.15	: 0.025 urement Information mR1 Value 9.99999677 Serial # P1020203		
Ratio 7 9.9996364 9 9.998384 9 9.998383 9 9.998383 9 9.998383 1 9.998383 9 9.998383 9 9.998383 9 9.998383 9 9.998383 9 9.998383 15 9.998383	Remean: 9.999999 Re 2 9.1 1 9.1 9 9.1 8 9.1 7 9.3 0 9.1 0 9.1 1 9.1	677 Ratio_unc isistance 39999686 39999685 39999682 39999681 39999674 39999674 39996675	ert. (95%)	(ppm): 0.0043 Resistor Informa Resistor Resistor Max I(A) 0.15 Is (A)	R_max atton MR9 Absolu 1.000 Se 103 Ps	[ppm]: 0.009 Operation Infor	R_min (ppm): mation Meas d Rx Type Resistor Max. I (A) 0.15 Ix (A)	: 0.025 		
Ratio 77 9.9996384 29 9.9996383 29 9.9996383 20 9.9996383 21 9.9996383 22 9.9996383 23 9.9996383 24 9.9996383 25 9.9996383 26 9.9996383 27 9.9996383 28 9.9996383 29 9.9996383 29 9.9996383 20 9.9996383	Rean: 9.99999 Re 91 1 91 9 91 8 91 3 91 0 91 1 91	677 Ratio_unc sistemce 99990665 99990685 99990681 99990671 99990674 99990674 99990675	ert. (95%)	(ppm): 0.0043 Resistor Informa Resistor Resistor Max I(A) 0.15 Is (A) 0.0500	R_max ation mR9 Absolu 1.000 Se 103 Ps 2.5	[ppm]: 0.009 Operation Infor	R_min [ppm]: mation Meas d Rx Type Resistor Max. (A) 0.15 Ix (A) 5.00e-3	: 0.025 wrement information MR1 9.99999677 Serial # P1020203 Px. (M) 0.250e-3		
Ratio 7 9.9996384 9.9996384 9.9996383 1.9.996383 1.9.996383 1.9.996383 3.9.996383 3.9.996383 3.9.9996383 5.9.9996385 5.9.99965 5.9.99965 5.9.99965 5.9.99955 5.9.999655 5.9.999655 5.9.	R_mean: 9,999999 2 9,99 1 9,99 7 9,9 7 9,9 7 9,9 7 9,9 3 9,9 1 9,9 1 9,9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	677 Ratio_unc sistance 39999685 39999685 39999681 39999671 39999671 39999674 39999674 39999675 30999675	ert. (95%)	(ppm): 0.0043 Resistor Informa Resistor Resistor Max I(A) 0.15 Is (A) 0.0500	R_max ation mR9 Absolu 11.000 Se 103 P3 2.6	[ppm]: 0.009 Operation Infor	R_min [ppm]: mation Meas d Rx Type Resistor Max. (A) 0.15 Ix (A) 5.00e-3 inded Uncertainty (6	: 0.025 wrement Information MR1 9.99999677 Serial # P1020203 P2 (W) 0.250e-3 55%)		
Ratio 27 9.9996384 9.9996384 29 9.9996384 29 9.9996383 29.9996383 29.9996383 30 9.996383 30 9.996383 30 9.996383 31 9.9968383 35 9.9996383 36 9 Task	Rean: 9.99999 Re 9	677 Ratio_unc elistance 39999686 39999682 39999681 39999681 39999681 39999677 39999674 39999675 	ert. (95%)	(ppm): 0.0043 Resistor Informa Resistor Type Resistor Max I(A) 0.15 Is (A) 0.0500 Ratio Mee	R_max atton mR9 Absolu 1.000 Se 103 P3 2.5 m	[ppm]: 0.009 Operation Infor 1 < Stender 015844 [rial # 31203] (00e-3 Expe Ratio	R_min [ppm]: mation Meas d Rx Type Resistor Max. I Resistor	: 0.025 :urement information MR1 Value 9.99999677 Serial # P1020203 P2 (W) 0.250e-3 15%) (Sestance		
Ratio Ratio 17 9.9996304 18 9.9996304 19 9.9996303 10 9.9996303 11 9.9996303 12 9.9996303 13 9.9996303 14 9.9996303 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996304 15 9.9996305 15 9.9996304 15 9.9996305 15 9.99965 15 9	R_mean: 9.99999 2 99 1 99 9 99 8 99 7 99 9 99 1 99 9 99 9 99 1 99 9 99 1 99 1 99 1 99 1 99 1 99 9 99 1 1 9 99 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	677 Ratio_unc sistance 39393066 39393066 39393066 39393066 39393067 39393061 39393067 393930674 393930674 393930675 Segment 3 0 (M1 ✓ √ √	ert. (95%)	[ppm]: 0.0043 Resistor Informa Resistor Max 1(A) 0.15 Is (A) 0.0500 Ratio Mea 9.999833	R_max atton mR9 Absolu 1.000 Se 103 Ps 2.5 m 33	[ppm]: 0.009 Operation Infor	R_min [ppm]: mation Meas d Rx [Type Resistor Max. (A) 0.15 1x (A) 5.00e-3 nnded Uncertainty (S R	: 0.025 wrement information mR1 Value 9.99999677 Serial # P1020203 P1020203 P1020203 S%) 0.2506-3 S%) S%) S%) S%) S%)		

Thorough Real-time Measurement Information and Analysis - you have complete confidence in the measurement being made with the information provided. Available information includes a complete profile of the ongoing ratio measurement series with the full measurement configuration. Information is also in a graphical display format with uncertainty analysis. Complete measurement history of individual resistors is saved in the measurement data file. It includes measurement data along with its standard deviation and uncertainty. The history can be displayed in graphical control charts as well as have the full numerical data accessed for independent viewing and analysis.

Resistor History (ppm) HF98532

Years

Show Standard Deviation
 Show Trend Line
 Linear

Projection Value

Show Projection 6 /29/2016 V

Load History File
Open Saved History File In WordPad

- 0

X



History Information

0.9 +

Print Graph

998-07-0

998-11-02

-0.05

in 1997-04-03

R Std.Dev R Un

0.0913 0.1813 0.0343 0.0489

0.053

Simply create and/or customize multiple different measurement processes. This optimizes your metrology for the best measurements possible for both individual resistors and various resistance values. Customize the test current, reversal rates, wait sequences, number of measurements made, the statistical processes applied, filtering and other critical parameters.

A library of resistors, both standard resistors and measurand resistors, is created and available for access via the software. This provides a seamless way to manage the resistors and measurements necessary in the lab.

AccuBridge [®] Model Comparison										
Bridges	6020Q	6010D	6242D	6000B	6600A	6650A	6650AF			
Basic Bridge Capabilities										
Minimum Resistance	0.01 Ω	0.001Ω	0.001Ω	10 kΩ	100 kΩ	100 kΩ	100 kΩ			
Max Resistance	100 kΩ	100 kΩ	100 MΩ	1 TΩ	10 PΩ	1 PΩ	100 ΤΩ			
Best Uncertainty	<15 x 10 ⁻⁹	<40 x10 ⁻⁹	<0.1x 10 ⁻⁶	<0.1x 10⁻ ⁶	<7 x 10⁻ ⁶	<15 x 10 ⁻⁶	0.07%			
Ratio Range	0.08:1 to 14:1	0.08:1 to 14:1	0.001:1 to 100:1	1:1 to 14:1	1:1 to 100:1	1:1 to 100:1	n/a			
Linearity	<5x 10 ⁻⁹	<5 x 10 ⁻⁹	<10 x 10 ⁻⁹	<5 x 10 ⁻⁹	<0.1 x 10 ⁻⁶	<0.2 x 10 ⁻⁶	<0.5 x 10⁻ ⁶			
Advanced Bridge Capabilitie	S			•	•	•				
AccuBridge [®] Technology	Binary Wound DCC	Binary Wound DCC	Binary Wound DCC	Binary Voltage Divider	Dual Source Bridge	Dual Source Bridge	Internal Source / DVM			
Input Channels	2	2	2	4	2	2	1			
Ratio Measurement Mode	•	•	•	•	•	•				
Direct Measurement Mode	•	•	•	•	•	•	•			
Test Voltage Ranges	-00			10V to 110V	1 to 1000V	1 to 1000V	1 to 1000V			
Test Current Range	10µA to 150mA	10µA to 200mA	1µA to 150mA							
Current Reversal	Auto				n/a					
6011 Range Extenders		•	•							
Extended Current Max		3000A	3000A							
Self Calibration	•	•	•	•						
PRT/RTD compatibility	•	•	•							
Manual and Auto Operation	•	•	• 44.	•	•	•	•			
Remote Control	•	•	•	•	•	•	•			
Interfaces				GPIB						
Measurement Software	6020Q SW	6010 SW	6242D SW	6000 SW	6600 SW	6650A SW	none			
Warranty			· · · · · · · · · · · · · · · · · · ·	2 years						
Optional Matrix Scanner (Ch.)	10 to 80	10 to 80	10 to 40	10 to 40						
Optional Coax Scanner (Ch.)					10 or 20	10 or 20				
Instrument Features	·			·	^	·				
Touch Screen	•	•	•		•	•	•			
Graphical Data Display	•	•	•		•	•	•			
USB for Data	•	•	•		•	•	•			

Optional Accessories

4210A10-Channel High Resistance Matrix Scanner4220A20-Channel High Resistance Matrix Scanner9300AUltra High Stability Programmable Air Bath9300High Stability Air Bath9331Standard Air Resistors9210AMI-Type One Ohm Oil Resistors6XXX-BNCBNC connectors



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