Measurements International

Metrology is Our Science, Accuracy is Our Business™

4210, 4216 & 4220 AUTOMATED LOW THERMAL MATRIX SCANNERS

Featuring

- 10, 16 or 20 Four Terminal Channels
- Sealed Relays with 4 A Carrying Capacity
- 4 Conductor Wire or Binding Post Inputs
- Optional 30 A Capacity
- Low Thermal Matrix Design
- 1000 V_{DC}
- Insulation Resistance > $10^{12}\ \Omega$
- Front Panel or IEEE-488 Interface

Overview

Measurements International's series of Low Thermal Matrix Scanners are ideal for automating precision measurements to sub-ppm accuracy. The model 4210, 4216, or 4220 series of Low Thermal Precision Scanners are ideal for use in automated resistance and thermometry applications where several artifacts need to be calibrated efficiently and accurately. This series of Matrix Scanners improves efficiency by eliminating the need to continually change leads when measuring groups of resistors.

The input channels can be manually selected from the front panel or via the standard IEEE-488 interface when used in an automated system. LEDs on the front panel enable the operator to quickly verify which channels have been selected.

Front panel LED's designated A and B indicate the selected channels. Additionally, the A and B boards are separated to improve the insulation resistance. Protection from selecting the same relay on both sides is also available on the rear panel IEEE address switch.

The relay boards are thermally isolated to maintain equilibrium in the switching areas. Furthermore, the A and B boards are separated to improve the insulation resistance. Ultra-sensitive, high-efficiency polarized sealed relay technology is used to eliminate self-heating in the relay. Sealed relays have the advantage that they avoid contamination build-up commonly found in competitive scanners where contamination builds up between the relay contacts and the contacts on the printed circuit boards.

A choice of seven scanners is available. 10-Channel, 16-Channel, and 20-Channel with either tellurium copper binding posts or 2-meter four-conductor Teflon cables. The 20-Channel scanner is also offered with LEMO connectors direct connection.

In the A-series of scanners, the copper terminals are mechanically connected to the copper pads on the relay boards to reduce the thermals normally generated by soldered connections, thus reducing switching errors.

Feature	Benefit
Sealed Relays	Do not need maintenance or exercise programs.
High Insulation Resistance	Can be used up to 10 M with neglible error contribution.
Aids Automation	Allows multiple resistance measurements without intervention.
High Voltage & Current Capacity	Allows for appropriate stimulus in measurements.
MI Software Compatible	Preloaded in MI software used globally.

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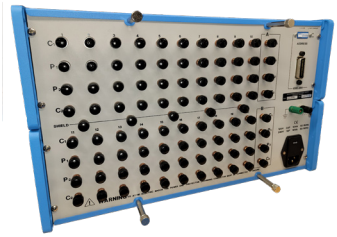
The B-series features four-conductor Teflon cable inputs with 2 four-conductor Teflon cable outputs attached directly to the relay boards reducing the number of contacts. Each B-series scanner comes with a 2-metre lead. As an option, the leads can be extended to 3 or 4 meters.

The model 4210A has 10 four terminal input channels consisting of 40 tellurium copper binding posts and 2 four-channel outputs consisting of eight tellurium copper binding posts.

The 4216A has 16 four terminal tellurium copper binding posts and 2 outputs consisting of 8 tellurium copper binding posts. The model 4216B has 16 four-conductor Teflon cable inputs with 2 four-conductor Teflon cable outputs.

The 4220A has 20 four terminal tellurium copper binding posts and 2 outputs consisting of 8 tellurium copper binding posts. The model 4220B has 20 four-conductor Teflon cable inputs with 2 four-conductor Teflon cable outputs. The 4220A is also available in a 30 Amp model to handle currents up to 30 A (model 4220A/30). The 4220C has 20 lemo connecter inputs and two lemo connector outputs.

4220A



4220B

4220C

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Specifications: Rev 4

Operation	Four Terminal Matrix
Thermal EMF's	< 50 nV
Error Contribution	< 20 nV
Contact Configuration	Relay – Two Coil Latching
Max Carrying/Switching Current	4/2 @ < 30 V (DC)
Maximum Working/Switching Voltage	1000/220 V @ < 100 mA (DC)
Contact Resistance	< 0.05 Ω
Expected Relay Life	10^8 Operations
Insulation Resistance	> 10^{12} Ω
4210A, 4216A and 4220A Connection Type	Tellurium Copper Binding Posts
4210B, 4216B and 4220B Connection Type	Teflon 4-Conductor Shielded Cables
4220C Connection Type	Lemo Connectors
4210A Inputs (10-Channels) Rear Panel/Outputs (Front Panel)	40/8
4210B Inputs (10-Channels) Rear Panel/Outputs (Rear Panel)	10/2
4216A Inputs (16-Channels) Rear Panel/Outputs (Rear Panel)	64/8
4216B Inputs (16-Channels) Rear Panel/Outputs (Rear Panel)	16/2
4220A Inputs (20-Channels) Rear Panel/Outputs (Rear Panel)	80/8
4220B Inputs (20-Channels) Rear Panel/Outputs (Rear Panel)	20/2
4220C Inputs (20-Channels LEMO Connections) Rear Panel Outputs (Rear Panel)	20/2
Manual/IEEE-488	Both
Operating Environment	18 °C to 34 °C, 10 % to 80 % RH
Warranty	1 Year Parts & Labour

** Optional: Lemo Connectors*

Dimensions (L × W × H):
Provided with Quote

Weight:
Provided with Quote

Shipping Weight:
Provided with Quote

Mains Power:
100 to 120 V_{ac}, 220 to 240 V_{ac}, 50/60 Hz

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