NEW MODEL 4176 – Programmable Digital Micro-Ohmmeter

Super-Stable Low Resistance Measurements

Model 4176 µ-Ohmmeter

The upgraded Model 4176 provides **0.04% basic accuracy** with a measurement range from **1 µΩ to 30 kΩ**. Seven ranges can be selected manually or through the **Auto-Range** function, with precision maintained by **four-wire Kelvin binding posts** that accept banana plugs, spade lugs, or wires.

Connectivity & Control

Serial communications are significantly improved, offering a more stable connection along with new commands and queries. In addition to the **RS-232 interface**, the 4176 now includes **USB** and an optional **Ethernet interface** for flexible integration into modern systems.

NEW! User Configuration & Convenience

The 4176 now allows users to **store custom power-up settings**, ensuring that preferred configurations are automatically restored at startup without the need for re-entry.

Comparator & Measurement Features

The **Hi-Lo comparator** has been expanded to include both **Min/Max limits** and a new **Nominal ±% deviation mode**, providing greater flexibility in pass/fail testing. The **Peak Measurement Mode** has also been enhanced for more accurate transient detection.

Display & Safety Enhancements

A new **OLED display** delivers clear readouts and features a **dimming mode** that functions as a screensaver. For safety, the instrument now offers an **optional Interlock Current Disable** via the rear panel and a **Range 0 (Safe Mode)** that ensures no current is sourced.

Additional Capabilities

As with the previous model, the 4176 supports **temperature compensation** through the Omni Compensator sensor system, allowing programming to any coefficient or reference temperature. Optional Rear-panel **relay closure terminals** enable automation such as batch sorting, counters, alarms, or process shutdowns.

Available Accessories

- **Omni-TC Temperature Sensor** – for use with the TCM temperature compensation feature
- **RX-3 Rack Mount Adapter** – for mounting the 4176 in standard 19-inch racks

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Key Features

- 7 Ranges from 20mΩ to 20kΩ + Auto Range
- Four Terminal Kelvin Connections
- RS-232 and USB Interface Standard
- Automatic Temperature Compensation
- Run/Hold and Peak Detector
- Print/Log Function
- Store Power-Up Settings
- 1μΩ Resolution to 30kΩ Max Measurement
- OLED Display with Adjustable Intensity
- Optional Ethernet Interface
- Internal HI-LO Comparator
- Send/Log Function
- Optional Interlock Current Disable

Standard Measurement Mode Specifications

#	Range	Test Voltage	Full Scale	Resolution	Current Source[1]	Accuracy[2] ± (% of Reading + Ω)	Temperature Coefficient[3]
1	20mΩ	20mV	20.000mΩ	1μΩ	1A	± (0.02% + 0.004mΩ)	±20ppm/°C
2	200mΩ	200mV	300.00mΩ	10μΩ	1A	± (0.02% + 0.04mΩ)	±20ppm/°C
3	2Ω	200mV	3.0000Ω	100μΩ	100mA	± (0.02% + 0.0004Ω)	±20ppm/°C
4	20Ω	200mV	30.000Ω	1mΩ	10mA	± (0.02% + 0.004Ω)	±20ppm/°C
5	200Ω	200mV	300.00Ω	10mΩ	1mA	± (0.02% + 0.04Ω)	±20ppm/°C
6	2kΩ	200mV	3.0000kΩ	100mΩ	100μA	± (0.02% + 0.0004kΩ)	±20ppm/°C
7	20kΩ	200mV	30.000kΩ	1Ω	10μA	± (0.02% + 0.004kΩ)	±20ppm/°C

Temperature Compensator Mode Specifications

#	Range	Accuracy
1	20mΩ	± [0.02% of Reading + 0.007mΩ + (0.0002mΩ x ΔT)]
2	200mΩ	± [0.02% of Reading + 0.07mΩ + (0.002mΩ x ΔT)]
3	2Ω	± [0.02% of Reading + 0.0007Ω + (0.00002Ω x ΔT)]
4	20Ω	± [0.02% of Reading + 0.007Ω + (0.0002Ω x ΔT)]
5	200Ω	± [0.02% of Reading + 0.07Ω + (0.002Ω x ΔT)]
6	2kΩ	± [0.02% of Reading + 0.0007kΩ + (0.00002kΩ x ΔT)]
7	20kΩ	± [0.02% of Reading + 0.007kΩ + (0.0002kΩ x ΔT)]
ΔT is the absolute value of the difference between the ambient temperature in °C and 25°C.		

General Specifications

Display:..... 5 Digit / Multi Section OLED Display
Overload Indication:..... Displays O.L.
Terminal Configuration:..... Four-wire Kelvin
Compliance Voltage:.....5 VDC nominal

Environmental

Operating Temperature Range:.....0 to 50°C
Storage Temperature Range:..... -40°C to 85°C
Humidity:.....80% RH at 40°C non-condensing

Power Requirements

Power Supply Voltage:.....105-125 or 210-250 VAC
Power Supply Frequency:.....50 - 60 Hz Power
Supply Consumption:..... 25VA Maximum

Physical

Dimensions: ... 17"(43cm) W x 17"(43cm) D x 4"(10cm) H
Weight: .....4.7Kg (10.4 lbs.) Net; 7Kg (15 lbs.) Shipping

[1] Current Source is ±1% absolute accuracy.
[2] The accuracy specifications listed are valid following a 30-minute warm-up at an ambient temperature between 15°C and 35°C and include the effects of line voltage variations within the allowed range.
[3] Temperature Coefficient specified for temperature ranges from 5°C to 21°C and 29°C to 50°C.

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