

580

Micro-ohmmeter

with Test Leads & Test Lead Pouch



- 10 $\mu\Omega$ sensitivity
- 20mV voltage clamp
- Selectable test current waveforms
- 3 sets of test leads included
- Optional IEEE-488 interface
- Optional battery

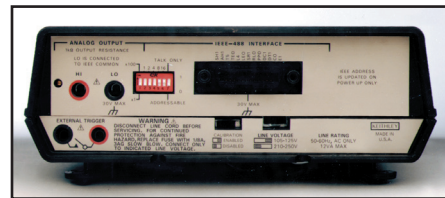
Ordering Information

- 580 Micro-ohmmeter with Test Leads and 5801 Test Lead Pouch
- 580-1 Micro-ohmmeter without Test Leads and Pouch
- 580/5802 Micro-ohmmeter with Isolated Analog Output/IEEE-488 Interface
- 580/1978 Micro-ohmmeter with Rechargeable Battery Pack
- 580/02/78 Micro-ohmmeter with Isolated Analog Output/IEEE-488 Interface and Rechargeable Battery Pack

This product is available with an Extended Warranty.

Accessories Supplied

5801, 5804, 5805, and 5806 test leads; Operator's and Service Manuals.



Model 580/5802 rear panel

Resistance measurements can be made from 10 $\mu\Omega$ to 200k Ω on seven ranges, with 4½-digit resolution and accuracy to within 0.04% of reading. Ranging can be performed either manually or automatically.

The Model 580 is supplied with three sets of test leads—standard leads, Kelvin probes, and Kelvin clip leads. For applications requiring portability or line power isolation, an optional battery pack is also available. Digital calibration is possible through front panel controls or over the optional IEEE-488 bus interface.

The Model 580 Micro-ohmmeter combines high accuracy, resolution, and sensitivity with three special capabilities that make micro-ohm measurements easier and more versatile than ever:

1. When measuring contact and connector resistances, it is important not to puncture oxides and films that may have formed. The Model 580 ensures this dry-circuit condition by clamping the open-circuit test voltage to 20mV on the 200m Ω , 2 Ω , and 20 Ω ranges when the 20mV MAX button is pressed.
2. The Model 580 can test more devices by enabling both test current polarity and waveform (DC or pulsed) to be selected. When using pulsed test current, the Model 580 automatically compensates for thermoelectric EMFs. Tests on inductive devices are best performed using DC test current, as this avoids the effects of time constants on pulsed current resistance measurements. For temperature-sensitive components, a single trigger mode of operation minimizes power delivered to the device.
3. The optional IEEE-488 bus interface permits operation as a stand-alone unit as well as in a PC-based system.

ACCESSORIES AVAILABLE

TEST LEADS

- | | |
|---------|---------------------------------|
| 5804 | Test Lead Set |
| 5805 | Kelvin Probes, 0.9m (3 ft) |
| 5805-12 | Kelvin Probes, 3.6m (12 ft) |
| 5806 | Kelvin Clip Leads |
| 5807-7 | Helical Spring Point Test Leads |

RACK MOUNT KITS

- | | |
|------|--------------------------|
| 1010 | Single Rack Mounting Kit |
| 1017 | Dual Rack Mounting Kit |

OTHER

- | | |
|------|---|
| 1978 | Rechargeable Battery Pack |
| 5801 | Test Lead Pouch |
| 5802 | Isolated Analog Output/IEEE-488 Interface |



Model 5802: Isolated analog output/IEEE-488 interface for Model 580 (cover included).

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Micro-ohmmeter

with Test Leads & Test Lead Pouch

GENERAL

DISPLAY: 4½-digit LCD.

CONNECTORS: Measurement and rear panel EXTERNAL TRIGGER inputs: Banana jacks.

RELATIVE: Display annunciator indicates REL.

DRIVE: Selects either pulsed or DC SOURCE current. Pulsed drive provides automatic cancellation of thermal offsets using 50% duty cycle pulse. Display annunciator indicates drive selected.

POLARITY: Selects either positive or negative SOURCE current in either drive.

TRIGGER: Allows single pulsed measurements.

EMC: Conforms to European Union Directive 89/336/EEC.

SAFETY: Conforms to European Union Directive 73/23/EEC (meets EN61010-1/IEC 1010).

OPERATING ENVIRONMENT: 0°–50°C, <80% relative humidity up to 35°C; linearly derate 3% R.H./°C from 35° to 50°C.

POWER: 105–125V or 210–250V (switch selected), 90–110V available. 50–60Hz, 12VA. Optional 6-hour battery pack, Model 1978.

DIMENSIONS: 89mm high × 241mm wide × 300mm deep (3½ in × 9½ in × 11¾ in). Test lead pouch adds 76mm (3 in) in height.

IEEE-488 BUS IMPLEMENTATION

MULTILINE COMMANDS: DCL, SDC, GET, GTL UNT, UNL, SPE, SPD, LLO.

UNILINE COMMANDS: IFC, REN, EOI, SRQ, ATN.

INTERFACE FUNCTIONS: SH1, AH1, T5, TE0, L4, LE0, SR1, RL0, PP0, DC1, DT1, C0, E1.

PROGRAMMABLE PARAMETERS: Range, DRY CIRCUIT TEST, Operate, RELative, POLARITY, DRIVE, TRIGger, Calibration, EOI, SRQ, Status, Data Format, Terminator.

RANGE	RESOLUTION	MAXIMUM TEST CURRENT	NON DRY CIRCUIT TEST ACCURACY		DRY CIRCUIT TEST ACCURACY	
			1 Year, 18°–28°C ±(%rdg + counts) PULSED	1 Year, 18°–28°C ±(%rdg + counts) DC	MAXIMUM POWER DISSIPATION IN SAMPLE	1 Year, 18°–28°C ±(%rdg + counts) PULSED
200 mΩ	10 μΩ	100 mA	0.04 + 2	0.04 + 3	500 μW	0.05 + 2
2 Ω	100 μΩ	10 mA	0.04 + 2	0.04 + 3	50 μW	0.05 + 2
20 Ω	1 mΩ	1 mA	0.04 + 2	0.04 + 3	5 μW	0.05 + 2
200 Ω	10 mΩ	1 mA	0.04 + 2	0.04 + 2		
2 kΩ	100 mΩ	1 mA	0.04 + 2	0.04 + 2		
20 kΩ	1 Ω	10 μA	0.05 + 2	0.05 + 2		
200 kΩ	10 Ω	10 μA	0.075 + 2	0.075 + 2		

CONFIGURATION: 4-wire (two sense, two source).

MAXIMUM SOURCE VOLTAGE: 20mV in Dry Circuit Test, 1V otherwise.

MAXIMUM TEST LEAD RESISTANCE

200mΩ and 2Ω Ranges: Up to 5Ω in each SOURCE lead and 10Ω in each SENSE lead with Non Dry Circuit Test; up to the selected full range resistance in each SOURCE lead and 10Ω in each SENSE lead with Dry Circuit Test.

20Ω through 200kΩ Ranges: Up to half of the selected range in each test lead.

CONVERSION RATE: 3 readings/second typical.

RANGING: Auto or manual.

AUTORANGING TIME: 200ms per range change, average.

SETTLING TIME: <1 second to within 10 counts on range.

MAXIMUM INPUT OVERLOAD: 10V limited to 10A.

MAXIMUM COMMON MODE VOLTAGE: 30V rms at DC, 50 or 60Hz.

TEMPERATURE COEFFICIENT (0°–18°C & 28°–50°C): ±(0.1 × applicable accuracy specification)°C.

ISOLATED ANALOG OUTPUT/ IEEE-488 INTERFACE (Model 5802 Option)

ANALOG OUTPUT

LEVEL: 1V = 10,000 counts on ×1 gain.

1V = 100 counts on ×100 gain.

Maximum output voltage = ±4V

ACCURACY: ±(0.25% of displayed reading + 2mV). In ×100, 2mV output = 0.2 displayed counts.

RESPONSE TIME: Follows display conversion rate.

OUTPUT RESISTANCE: 1000Ω.

ISOLATION: ANALOG OUTPUT LO is connected to IEEE COMMON. Maximum common mode voltage from IEEE COMMON to earth ground is 30V rms at DC, 50 or 60Hz.

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