

# 580 Micro-ohmmeter

- 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 5804, 5805, 5806 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**. See section C for complete ordering information.

## 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

See page A-231 for descriptions of all accessories.

The 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 580 ensures this dry circuit condition by clamping the open circuit test voltage to 20mV on the 200m $\Omega$ , 2 $\Omega$ , and 20 $\Omega$  ranges when the 20mV MAX button is pressed.
2. The 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 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. Single trigger operation is possible via the front panel.
3. The optional IEEE-488 bus interface permits operation as a stand-alone unit as well as in a PC-based system.

A microprocessor-based design gives the 580 a number of advanced capabilities. Resistance measurements can be made from 10 $\mu\Omega$  to 200k $\Omega$  on seven ranges, with 4½-digit resolution and accuracy to within 0.04% of reading. Ranging can be performed either manually or automatically. Settling time is less than one second to within 10 counts on a given range.

The 580 is supplied with three sets of test leads—standard leads, Kelvin probes, and Kelvin clip leads—in a rugged strap-on pouch. 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 580 is supplied with three sets of test leads—standard leads, Kelvin probes, and Kelvin clip leads—in a rugged strap-on pouch.*

## QUESTIONS?

1-800-552-1115 (U.S. only)

Call toll free for technical assistance, product support or ordering information.

# 580 Micro-ohmmeter

RANGE	RESOLUTION	MAXIMUM TEST CURRENT	NON DRY CIRCUIT TEST ACCURACY 1 Year, 18°-28°C ±(%rdg + counts)		DRY CIRCUIT TEST ACCURACY 1 Year, 18°-28°C ±(%rdg + counts)	
			PULSED	DC	MAXIMUM POWER DISSIPATION IN SAMPLE	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:** 200 ms 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.

### GENERAL

**DISPLAY:** ±20,000-count LCD, range and status information displayed.

**OVERRANGE INDICATION:** "OL" displayed.

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

**RELATIVE:** Allows zeroing of on-range readings. Allows readings to be made with respect to baseline value. 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. Display annunciator indicates polarity selected.

**TRIGGER:** Allows single pulsed measurements.

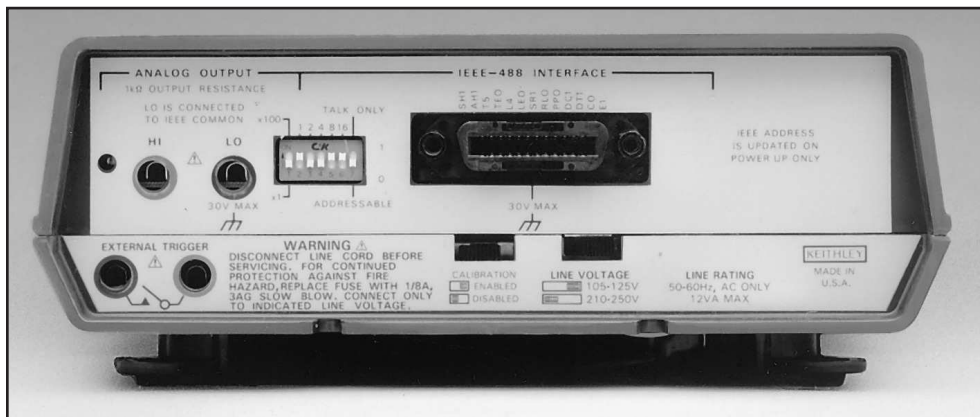
**OPERATING ENVIRONMENT:** 0°-50°C, <80% relative humidity up to 35°C; linearly derate 3% R.H./°C from 35° to 50°C.

**STORAGE ENVIRONMENT:** -25° to 60°C.

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

**DIMENSIONS, WEIGHT:** 89mm high × 241mm wide × 300mm deep (3½ in × 9½ in × 11¾ in). Net weight 3.2kg (7 lb). Test lead pouch adds 76mm (3 in) in height.

**ACCESSORIES SUPPLIED:** Models 5801, 5804, 5805, and 5806 test leads; Operator's and Service Manuals.



### 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, RLO, PP0, DC1, DT1, C0, E1.

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

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