

# Model 1806A

RF CALIBRATION AND MEASUREMENT PRODUCTS

- Traceable to primary voltage and resistance standards
- Internal temperature controller
- Compatible with Agilent (HP) 200 Ohm thermistor mounts and all TEGAM (Weinschel) RF Power Standards
- Internal reference voltage generator for more precise measurements
- Fault indicator illuminates when loop balance is prevented
- One-year warranty
- Optional A2LA Accredited ISO/IEC 17025:1999 Compliant Calibration

## Dual Type IV Power Meter

The Model 1806A Dual Type IV Power Meter is designed for use with thermistor elements and an external DVM to measure high frequency power, microwave power, or insertion loss. It can also function as a standard for the calibration of RF detectors, RF voltmeters, and thermistor mounts manufactured by TEGAM, Weinschel, and Agilent (HP). Thermistor mounts easily interface to the 1806A's front panel binding post connections. Temperature control circuits are included for TEGAM and Weinschel temperature controlled thermistor mounts.

The exclusive use of 100 % DC substituted power eliminates the effect of AC components on the bridge circuit. AC components have been shown to introduce a substantial error in the substituted power due to the short-term time constant of some bolometer elements. Substituted dc power levels ranging from 0.01 mW to 30 mW can be measured to within  $\pm 0.003\%$ . This makes the 1806A an

ideal instrument for insertion loss measurements.

The Model 1806A also has an internal voltage reference generator. This allows low resolution voltmeters to achieve the same precision as higher resolution DVMs. This means an expensive high-resolution DVM is not required. Regardless of the application, all measurements can be made traceable to primary voltage and resistance standards.

The 1806A contains two Type IV Power Meters and two built-in temperature controllers for use with all TEGAM RF Power Transfer Standards (refer to applicable data sheets for standard specifications). The 1806A is compatible with Agilent (HP) 478A, 200 Ohm 486A's, and 8478A thermistor mounts (when used with cable P/N 138-652). Each power meter has a fault LED indicator which illuminates under any condition preventing loop balance.

Terminals are provided for an external DVM, positive and negative bolometer, and heater control.



Prices and specifications subject to change without notice.

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YOUR GLOBAL SOURCE FOR TEST  
AND MEASUREMENT SOLUTIONS

# Model 1806A

## Specifications

|   |  |
|---|--|
| Power Range   | 0.01 to 30 mW  |
| Substitution Bridge Accuracy  | ±0.003 %   |
| Temperature Controller  |  |
| Bias Power Temperature Sensitivity                                    | 2 µW/°C per hour   |
| Ambient Temperature Dynamic Range                                     | +12 °C to +32 °C (+54 °F to +90 °F)  |
| Mount Warm-Up Time  | 2 hours nominal  |
| Mount Internal Temperature  | Approximately +60 °C (+140 °F)   |
| Loop Gain   | 80 dB minimum  |
| Open Loop Frequency Response  | 0.1 Hz   |
| Warm-Up Drive (saturated)   | 8-10 V @ 200 mA minimum  |
| Indicator   | Green LED  |
| Reference Voltage Generator   | 2.5 VDC ±10 mV   |
| Reference Voltage Generator Calibration Accuracy                      | 10 ppm   |
| Reference Voltage Generator Drift                                     | 6 ppm/1000 hours   |
| Environmental   |  |
| Operating Temperature   | +12 °C to +32 °C (+54 °F to +90 °F)  |
| Storage Temperature   | -40 °C to +75 °C (-40 °F to +167 °F)   |
| Humidity  | Less than 80 % RH, non-condensing  |
| Altitude  | Sea level to 2000 meters   |
| Connectors  |  |
| BIAS VOLTAGE  | Binding posts, 0.75" spacing for banana plugs  |
| TEMP  | 4-pin mini-microphone  |
| VOLTMETER   | Binding posts, 0.75" spacing for banana plugs  |
| Power Requirements  | 12 Watts, 50 to 400 Hz, 105 to 125 VAC<br>standard or 210 to 250 VAC with a factory installed option |
| Weight  | 9 kg (20 lb)   |
| Physical Dimensions   |  |
| Height  | 89 mm (3.5 in)   |
| Width   | 457 mm (18 in)   |
| Depth   | 391 mm (15.4 in)   |
| Included Accessories  |  |
| Power Cord  | P/N 068-21   |
| Manual  | P/N IM140-CD   |
| Heater Cable (X2)   | P/N CBL-F1125-48   |
| Set of Bias Cables (X2)   | P/N 138-526  |
| Optional Accessories  |  |
| Agilent (HP) Thermistor Mount Cable                                   | P/N 138-652  |
| Rack Mount Kit  | P/N RM-1825  |
| 220 VAC Power Supply (Factory Installed)                              | P/N 1806A/220  |
| Z540 Compliant Calibration<br>with Certificate and Data for 1806A     | P/N OPT-Z540   |
| A2LA Accredited ISO/IEC 17025:1999<br>Compliant Calibration for 1806A | P/N OPT-A2LA   |

