RF Power Level Control Unit 0.5 to 10 mW

- **Internal temperature controller**
- **DC substitution & bias supply**
- **Automatic DC level control**
- **Front panel mount error indicator**
- **One year warranty**
- **Optional A2LA Accredited Calibrations**

Other features of the 1805B are:

- **Automatic DC Level Control**
  To within ± 0.1% +1µW, with a RF source variation of ± 3 dB and an ambient temperature range of +12 to +40°C. The dc substitution level is held to an accuracy of ±0.1% +5µW.
- **DC Substitution and Bias Supply**
  Maximum accuracy is achieved by using DC power for both bias and substitution signals.
- **Quick Visual Indication of Operation and Performance**
  The unit employs LEDs to inform the user of RF power on/off condition, ac power on/standby, mount error, and remote/listen functions. Easy-to-read meters are used to monitor temperature stability and bridge balance.

The 1805B RF Level Control Unit provides fast, reliable, and accurate leveled RF power when used in a closed-loop feedback arrangement. The unit provides automatic dc substitution at 0.5 mW and 1 mW to 10 mW in 1 mW steps using local or IEEE-488 bus control for easy and accurate transfer of calibration factors.

When used with bolometer element RF Power Standards (mounts) such as the TEGAM Model F1109, the 1805B permits the accurate transfer of up to 132 calibration frequencies traceable to NIST from 0.01 to 18.0 GHz. The 1805B is also compatible with other TEGAM System IIA components including all TEGAM RF Power Transfer Standards (refer to applicable data sheets for mount specifications).

An internal temperature controller raises and maintains the temperature of the mount chamber above ambient. This minimizes the effects of changes in ambient temperature for all TEGAM RF Power Transfer Standards.

The 1805B operates in a closed loop configuration for leveling the RF output of compatible signal sources. These sources are controlled directly using an analog signal applied to a dc coupled AM input connector.

Ultra stable dc high precision metal film resistors provide dc power increments across a TEGAM patented self-balancing bridge. The front panel bridge meter provides visual indication that closed loop stabilization has been achieved and enables rapid system operation. Coarse and fine adjustments are provided to obtain a meter null reading with no RF applied.

In addition to the bridge balance and temperature indicator, the 1805B contains several operational and performance checks. A front panel Mount Error indicator blinks if the voltage across the mount is not within a specified range. This alerts the operator of a mount fault such as open or shorted leads, or improper mount temperature. DC supply voltages are monitored by PCB-mounted LEDs which illuminate with an active power supply.

A standby mode switch allows mount heater circuit operation to maintain mount temperature at all times. This ensures full performance capability and long-term stability of the bolometer mount.

Prices and specifications subject to change without notice.

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Specifications

DC Power Substitution	
Level Range	0.5, 1 through 10 mW
Accuracy	(@ 30 ± 0.7 mW bias power): ± 0.1% + 5 μW
Bias Power Range	29 - 31 mW, automatic with error indication for out-of-range balance condition.
Power Level Control Range	3 - 23 dB minimum
Leveled RF Power (referenced to DC substituted power) Dynamic Range	± 3 dB
Unbalanced Detector	
Sensitivity	2 μW/division
Resolution:	0.2 μW
Leveler Loop Gain	80 dB
Temperature Controller	
Bias Power Temperature Sensitivity	2 μW/°C per hour
Ambient Temperature Dynamic Range	+ 12°C to +40°C (+54° to +104°F)
Mount Warm-up Time	2 hours
Internal Temperature	+60°C (+140°F) nominal
Loop Gain	80 dB minimum
Open Loop Frequency Response	0.1 Hz
Warm-up Drive (saturated)	8-10 V @ 200 mA minimum
Indicator	Voltmeter
Operating Modes	
Local	Manual front panel control of all unit functions.
Remote	IEEE-488 full function Bus Control RF ON/OFF and substituted DC output power levels (0.5 and 1 - 10 mW in 1 mW steps) using any PC Compatible Controller.
Temperature Range	
Operating	+10 to +40°C (+50 to +104°F)
Storage	-40°C to +75°C (-40° to +167°F)
Connectors	Binding Post, standard 0.75" spacing for Banana plugs.
Power Requirements	110/120/220/240 Vac ±10%, 48 to 62 Hz, 40 Watts
Weight	Net: 5.9 kg (13 lb)
Physical Dimensions	
Height	7.57 in (192.2 mm)
Width	8.8 in (223.5 mm)
Depth	17.5 in (444.5 mm)
Rack Mounting	The Model 1805B is a half rack instrument that can be mounted in any cabinet or rack designed according to EIA RS-310 and MIL-STD-189 using the Rack Adapter Kit (P/N 1919). This kit allows the Model 1805B to be mounted with the Model 1807A or another 1805B in the same rack-mount configuration.

This data sheet was current when it was produced. However, products are constantly being updated and improved. Because of this some differences may occur between the descriptions herein and the current product. Prices and specifications may be changed without notice.

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