

Coaxial RF Power Transfer Standards



System configurations employing instruments of this extreme accuracy typically achieve calibration factor transfer results normally found only in primary standards laboratories.

The Model F1130B is a feedthrough Thermistor Standard used for the calibration of bolometer, thermocouple, and diode terminating power sensors. The expanded frequency range has been achieved without compromising the VSWR or accuracy specifications.

The Model M1130A is a terminating thermistor Primary Transfer Standard. It is used for the calibration of feedthrough thermistor standards and Power Meter Reference Outputs. It is also useful in other applications requiring direct measurement of RF power and is designed to be calibrated directly by national metrology institutes.

Both models have a wider frequency band than any other thermistor power standard in this range. This reduces the number of standards needed to calibrate power sensors in the 100 kHz to 18 GHz frequency range and lowers annual calibration costs by up to 50%.

Both Models feature a Type N RF connector. Bias connectors are binding posts with standard 0.75 in. spacing for banana plugs. The internal heater is compatible with Models 1830A, 1806A, 1806, 1805B, and 1820 when the proper cable is selected.

- Used to calibrate RF Power Sensors in the new wider frequency range of 100 kHz to 18 GHz
- Standards are directly traceable to NIST
- Thermistor Standards are temperature controlled
- 0.01 to 25 mW dynamic range
- Primary and Working Transfer Standard configurations
- Rack mount option available
- A2LA Accredited ISO/IEC 17025 Compliant Calibration

TEGAM Temperature Stabilized Coaxial RF Power Transfer Standards enable the precise measurement of microwave power, now in the 100 kHz to 18 GHz frequency range. With this wider frequency range, the F1130B and M1130A can be used in applications that previously required two standards.

These units are extremely rugged, highly accurate, and stable with time and temperature. They are ideal for use as standards for the transfer of calibration factors to other RF standards and power sensors. Units are supplied with NIST traceable calibration data.

These RF Power Standards work with TEGAM's new 1830A RF Power Meter, as well as our legacy DC Self-Balancing Bridges, 1806, 1806A, and 1805B.



Specifications	F1130B	M1130A
Frequency Range	100 kHz to 18 GHz	100 kHz to 18 GHz
Power Range	0.01 to 25 mW (-20 to 14 dBm)	0.01 to 25 mW (-20 to 14 dBm)
Nominal Impedance	50 Ω	50 Ω
Max VSWR	1.06 from 100 kHz to 6 GHz 1.10 from 6 to 15 GHz 1.14 from 15 to 18 GHz	1.30 from 100 to 500 kHz 1.10 from 0.5 to 1000 MHz 1.20 from 1 to 3 GHz 1.45 from 3 to 18 GHz
Power Linearity	< 0.1 % from 0.1 to 10 mW	< 0.1 % from 0.1 to 10 mW
Insertion Loss	6 dB, 9 dB max	1.5 dB max
Individual calibrations traceable to NIST supplied at the following frequencies:	100, 200, 300, 455, 500 kHz 1, 1.25, 3, 5 MHz 10 to 100 MHz in 10 MHz steps 100 MHz to 2 GHz in 50 MHz steps 2 GHz to 4 GHz in 100 MHz steps 4 to 12.4 GHz in 200 MHz steps 12.75 to 18 GHz in 250 MHz steps	100, 200, 300, 455, 500 kHz 1, 1.25, 3, 5 MHz 10 to 100 MHz in 10 MHz steps 100 MHz to 2 GHz in 50 MHz steps 2 GHz to 4 GHz in 100 MHz steps 4 to 12.4 GHz in 200 MHz steps 12.75 to 18 GHz in 250 MHz steps
Calibration Factor Accuracy (typical)	± 0.80 % from 0.1 to 10 MHz ± 1.00 % from 0.01 to 10 GHz ± 1.10 % from 10 to 18 GHz	± 1.0 % from 0.1 to 10 MHz ± 1.20 % from 0.01 to 10 GHz ± 1.30 % from 10 to 18 GHz
Calibration Factor Drift	< 0.5 % per year	< 0.5 % per year
Thermistor DC Bias Power	30 ± 0.7 mW	30 ± 0.7 mW
Thermistor Resistance at Bias	200 Ω	200 Ω
Thermistor Power Sensitivity	Approximately 13 Ω/mW	Approximately 13 Ω/mW
Temperature		
Operating	+12 °C to +40 °C (+54 °F to +104 °F)	+12 °C to +40 °C (+54 °F to +104 °F)
Storage	-55 °C to +75 °C (-67 °F to +167 °F)	-55 °C to +75 °C (-67 °F to +167 °F)
Warm up time	2 hours	2 hours
Weight	3.7 kg (8.2 lb)	1.46 kg (3.22 lb)
Physical Dimensions		
Height	8.89 cm (3.5 in)	83.8 mm (3.3 in)
Width	21.59 cm (8.5 in)	76.2 mm (3.0 in)
Depth	35.2 cm (13.875 in)	234.95 mm (9.25 in)
Included Accessories		
Operation Manual	P/N IM-300	
A2LA Accredited ISO/IEC 17025 Compliant Calibration for F1130B or M1130A		
Optional Accessories		
RF Mount Transport Case for F1130B	P/N 2500-910	
RF Mount Transport Case for M1130A	P/N 8000	
3 in. Stand for M1130A	P/N M11XX-STAND	
Single Rack Mount Kit for F1130B	P/N 1830-910	
Dual Rack Mount Kit for F1130B	P/N 1830-911	
RF, Bias and Heater Cables	Reference the PM Series Datasheet on our website for a complete listing.	