

Coaxial RF Power Transfer Standards



- 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 F1130A 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 models are designed for use with DC self-balancing bridges such as the TEGAM Model 1806, 1806A and 1804, or with controllers such as the TEGAM Model 1805B.

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

The Model F1130A 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 designed to be calibrated directly by a national standards agency such as NIST. The M1130A is used for the calibration of feedthrough devices such as bolometer mount-coupler and bolometer mount-splitter RF Standards. It is also useful in other applications requiring direct measurement of RF power. The VSWR of this model is better than the two standards it replaces and the accuracy is unchanged.

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 connected with cables provided with the Models F1130A, 1805B, 1806, and 1820.



Specifications	F1130A	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 Ohms	50 Ohms
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 1 to 10 mW	<0.1 % from 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 Ohms	200 Ohms
Thermistor Power Sensitivity	Approximately 13 Ohms/mW	Approximately 13 Ohms/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	2.5 kg (5.5 lb)	1.46 kg (3.22 lb)
Physical Dimensions		
Height	88.9 mm (3.5 in)	83.8 mm (3.3 in)
Width	215.9 mm (8.5 in)	76.2 mm (3.0 in)
Depth	390.7 mm (15.4 in)	234.95 mm (9.25 in)
Included Accessories		
Operation Manual	P/N IM-300	
Heater Cable for F1130A	P/N CA-10-48	
A2LA Accredited ISO/IEC 17025 Compliant Calibration for F1130A or M1130A		
Optional Accessories		
RF Mount Transport Case for F1130A	P/N 8010	
RF Mount Transport Case for M1130A	P/N 8000	
3 in. Stand for M1130A	P/N M11XX-STAND	
Rack Mount Kit for F1130A	P/N F1120-RMK	