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AUTOMATED TUNERS

0.25 TO 4.0 GHz (IN DECADE BANDS)

Features

- Broadband Decade Frequency Range
- Wide Matching Range
15:1 Minimum VSWR Matching Capability [1]
- Low Loss, Low VSWR With
Probes Retracted
- Excellent Repeatability

Description

The Maury model series MT981 automated tuners are designed for use in automated applications requiring the ability to match the impedance of a microwave circuit element to 50 ohms or to establish a specific source or load impedance for determination of optimum terminating impedances. These tuners are a key element in the Maury automated tuner system (ATS) for making load and source pull, and noise characterization measurements, etc.

The tuners are precision electromechanical instruments for broadband operation covering 0.25 to 4 GHz in two decade frequency bands. These units are precision slide screw tuners utilizing an inherently broadband slab line design and two optimized probes to achieve extremely large matching ranges over a full decade of frequency. High precision stepper motors are linked to the two probes and the linear drive via anti-backlash mechanical assemblies to achieve high resolution and exceptional repeatability and resetability.

With the probes fully retracted, the tuners exhibit very low VSWR and insertion loss. The tuners have been designed to be capable of handling large amounts of power, such as is often required in performing load and source pull measurements.



Controller

The MT981 series tuners must be used with the MT986 series controllers which incorporate a high speed motor drive option. Do not use the MT986A or MT986A02 controllers with the MT981 series tuners because the tuners will not operate properly. Consult us for upgrade availability. Please see 4T-052A for compatible controllers.

Specifications

Frequency Range	See chart
VSWR Matching Range	See chart [1]
VSWR	1.05 maximum [2]
Loss	0.3 dB maximum [2]
Repeatability	50 dB minimum [3]
Step Size (Probes)	62.5 microinches [4]
Step Size (Carriage)	786 microinches [4]
Position Accuracy	±1 step
Power Handling [5]	100 W CW, 1 kW peak
Connectors	Precision 14mm (Maury MPC14) [6]

[1] These tuners will typically exhibit a minimum matching range of 20:1.

[2] Based on probes retracted.

[3] Between any two measurements at any position within the specified matching range.

[4] Based on 1/2 stepping the drive motors.

[5] At 10:1 matching range.

[6] Based on 1/2 stepping the drive motors.



Chart

Model	Frequency Range (GHz)			Matching Range (VSWR)	Length	
					Inches	(cm)
MT981A01	0.25	—	2.5	15:1 Minimum	36.85	(93.60)
MT981B	0.40	—	4.0	15:1 Minimum	23.03	(58.60)

Accessories Provided

The MT981 automated tuners are provided with one (1) each MT982C tuner cable which connects the tuner to the MT986 series controllers, two (2) each 2607A coaxial 14mm to 7mm adapters (in a wooden case), and one (1) each operating manual.