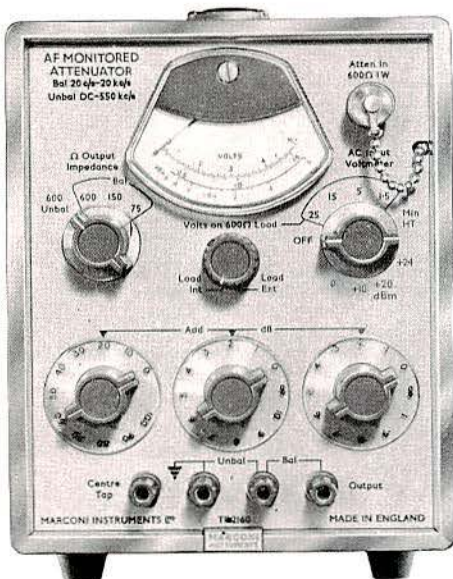


# Attenuators

- Three models for a.f./m.f.
- Steps of 0.1 dB
- Steps of 1 dB

## AF Monitored Attenuator TF 2160

The basis of these attenuators, TF 2160, TF 2161 and TF 2162 is the resistive pad in tee or pi form, and the variety of facilities available suits numerous applications. The three models employ the same basic attenuator system. This comprises three switches, each with four symmetrical 600  $\Omega$  T-pads which are switched in series combinations to make one decade, and the three decades in series cover 111 dB in 0.1 dB increments, nominally up to 1 MHz.



The TF 2160 combines the attenuators with a wide-range a.c. voltmeter and a high quality a.f. transformer so that accurate measurements can be made in the audio band. Without the transformer in circuit the operating range extends up to 550 kHz, and without the voltmeter to d.c.

IMPEDANCE			
Input	600 $\Omega$ unbalanced, when terminated with 600 $\Omega$ , 150 $\Omega$ or 75 $\Omega$ . Switched terminating resistor is incorporated.		
Output	600 $\Omega$ unbalanced, or 600 $\Omega$ , 150 $\Omega$ or 75 $\Omega$ balanced and centre-tapped when 600 $\Omega$ source is connected.		
FREQUENCY RANGE			
Unbalanced output	D.C. to 550 kHz.		
Balanced output	20 Hz to 20 kHz.		
ATTENUATION			
Range	0 to 111 dB in 0.1 dB steps, and $\infty$		
Maximum input	+30 dBm or 1 watt or 25 volts into 600 $\Omega$ .		
Minimum attenuation	Less than 0.01 dB.		
Accuracy	<i>Unbalanced output:</i> $\pm 1\%$ of dB setting $\pm 0.01$ dB, at d.c.; $\pm 2\%$ of dB setting $\pm 0.2$ dB, at 550 kHz. <i>Balanced outputs:</i> $\pm 1\%$ of dB setting $\pm 0.2$ dB, between 20 Hz and 20 kHz.		
INPUT VOLTMETER			
Ranges	Four switch positions selecting 1.5–5–15–25 volts f.s.d. or 0 dBm, +10 dBm, +20 dBm and +24 dBm.		
Meter	Three scales: 0 to 1.5 and 0 to 5 volts, and –6 to +6 dBm.		
Accuracy	$\pm 5\%$ of f.s.d. between 20 Hz and 550 kHz.		
OUTPUT FREQUENCY RESPONSE			
	Within $\pm 0.2$ dB between 20 Hz and 20 kHz; within $\pm 1$ dB between 20 Hz and 550 kHz; with constant input voltmeter reading.		
POWER REQUIREMENTS			
Internal batteries	8 volts d.c., 2 mA.		
DIMENSIONS AND WEIGHT			
	Height	Width	Depth
	7 in	5 in	10 in
	19.5 cm	14.5 cm	27 cm
			Weight
			18 lb
			8.2 kg