



DATA SHEET



Model DB877

Dekabox[®] Coaxial-Dial Decade Resistor

- 0.02% long-term accuracy
- Eight decades-precision wirewound resistors
- 120 million divisions of resolution
- Low temperature and power coefficient
- Solid silver alloy switch contacts
- Extruded metal case for shielding and mechanical protection

Model DB877 Dekabox[®] Decade Resistor is designed to provide long-term dependable service in precision DC and audio frequency applications. Eight decades of precision fixed resistors are mounted in an extruded metal case for shielding and mechanical protection. A case-connected ground terminal and two input terminals are conveniently located on the front of each unit.



Featured is the ESI-patented Dekadial[®] coaxial dial arrangement which provides up to 120 million divisions of resolution. It allows first, coarse approximation and then progressively finer steps to arrive at an exact resistance value. The dials turn independently through 360 degrees of rotation. A special detent design facilitates dial location.

Accuracy over a wide range of ambient conditions is assured by the use of resistors exhibiting low temperature and power coeffi-

icients. A single continuous filament winding on a thin mica card is used wherever possible. For high-resistance values, a non-inductive winding on a ceramic bobbin is used. Switches with multiple contacts of solid silver-alloy provide low, stable contact resistance, and the ceramic switch wafers are treated with silicone to further improve their insulating qualities.

Specifications

Accuracy

Accuracy of resistance increments is given in the accompanying table. Accuracy of resistance change from zero setting is given below.

Initial	$\pm(0.01\% + 7m\Omega)$
Long-term	$\pm(0.02\% + 10m\Omega)$

Short-Term Switching Repeatability

$\pm 1m\Omega$ (typical)

Number of Decades

Eight

Total Resistance

12M Ω

Resistance per Decade

See table

Smallest Step

0.1 Ω

Resistance at Zero Setting

Approximately 40m Ω

Breakdown Voltage

1000V peak to case

Dimensions

Height 5.9 in. (15.0cm)

Width 8.5 in. (21.6cm)

Depth 6.5 in. (16.5cm)

Weight

7.5 lbs (3.4kg) net

Model DB877 ratings per step for each decade

RESISTANCE PER DECADE (Ω)	SMALLEST STEP (Ω)	INCREMENTAL ACCURACY		COEFFICIENTS		MEASUREMENT DUTY* MAXIMUM RATINGS		PEAK VOLTAGE (V/step)
		INITIAL (%)	LONG-TERM (%)	TEMPERATURE (ppm/ $^{\circ}$ C)	POWER (ppm/mW/step)	POWER (mW/step)	CURRENT (mA)	
10M	1M	0.02	0.03	5	0.3	22	0.15	300
1M	100k	0.02	0.03	5	0.3	220	1.5	300
100k	10k	0.02	0.03	5	0.3	500	7	
10k	1k	0.02	0.03	5	0.3	500	23	
1k	100	0.02	0.03	5	0.3	500	71	
100	10	0.03	0.03	15	0.9	500	230	
10	1	0.1	0.12	20	1.2	500	710	
1	0.1	1.0	1.0	60	6	250	1600	

*Intermittent use such that temperature rise of the resistor will not appreciably exceed that which would occur in free air.

Standard Equipment

Model DB877 comes with a 19199 instruction manual.

