



1434 Decade Resistor

- **±0.02% accuracy**
- **5-, 6-, or 7-dial settability**
- **excellent stability, low cost**

These laboratory-quality, budget-priced decade boxes are designed for maximum usefulness and economy in laboratory measurement, testing, and development work. Their accuracy is adequate for all but the most exacting applications. Their small size and clear readout should be particularly useful in experimental setups using small, modern components.

The 1434-M, -N, and -P contain five step decades of resistance in a small cabinet. The 1434-B and -X, 6-dial boxes, permit small as well as large values of resistance to be set with 3- or 4-place resolution and accuracy. The 1434-QC, a "best buy," has four step decades plus a rheostat to provide 1-ohm resolution in a 1-megohm box.

The larger, seven-decade, 1434-G box is easily converted into a 3½-inch relay-rack unit by the addition of angle brackets and dress strips, which are furnished. This box has lug terminals available at the rear, as well as at panel binding posts.

DESCRIPTION

High-quality, wire-wound resistors are used in these decades. The low price is made possible by the use of only six resistors per decade instead of ten. These are combined by switching in such a way that there are no discontinuities; that is, the resistance increases stepwise just as though ten resistors were used. The switches have solid-silver-alloy contacts for low resistance and long life.

Resistors are of low-temperature-coefficient Evanohm* wire, except the 1-ohm/step and 0.1-ohm/step decades which use wire and ribbon (respectively) of another low-temperature coefficient alloy. The resistors of the 100-, 10-, and 1-ohm/step decades are Ayrton-Perry wound to minimize inductance.

* Registered trademark of the Wilbur B. Driver Company.

SPECIFICATIONS

Accuracy: Tolerances apply at low currents and at dc or low-frequency ac.

Over-all: The difference between the resistances at any setting and at the zero setting is equal to the indicated value $\pm(0.02\% + 5 \text{ m}\Omega)$, except for the 1434-QC, which may have an additional error of $\pm 1 \Omega$ when the rheostat is used.

Incremental: See table. This is the accuracy of the change in resistance between any two settings of the same dial.

Zero Resistance: Approx 3 m Ω per dial at low frequencies; except for the 1434-QC, approx 30 m Ω .

Max Current: See table; these values also appear on the panel of each decade box. When this max current is passed through a decade, the temporary change in value will be less than the accuracy specification. Currents appreciably higher than this will cause permanent damage.

Total Resistance of Decade	Resistance Per Step	Incremental Accuracy*	Max Current
1 Ω	0.1 Ω	±3.0%	1 A
10 Ω	1.0 Ω	±0.3%	0.3 A
100 Ω	10 Ω	±0.05%	160 mA
1 k Ω	100 Ω	±0.02%	50 mA
10 k Ω	1 k Ω	±0.02%	16 mA
100 k Ω	10 k Ω	±0.02%	5 mA
1 M Ω	100 k Ω	±0.02%	1.6 mA
100- Ω Rheostat**	1 Ω /div	±1 Ω	200 mA

* At low currents and low frequencies.

** Used in 1434-QC.

Temperature Coefficient: $<\pm 10$ ppm/°C at room temperature, except for the low-valued units where the $\pm 0.4\%$ /°C temperature coefficient of the zero resistance must be added.

Frequency Characteristics: Generally similar to those of the 1433 Decades.

Switches: Multiple wiper, solid-silver-alloy switches are used to obtain low and stable zero resistance.

Terminals: Jack-top binding posts on standard ¾-in. spacing. A shield terminal is also provided. The 1434-G has lug connections accessible from the rear.

Mounting: All types except the 1434-G are in small cabinets for bench use. The 1434-G is also designed for bench use but, with the addition of mounting hardware, becomes 3½-in. high, 19-in. relay-rack unit.

Mechanical Data:

Models	Width		Height		Depth		Net Weight		Shipping Weight	
	in.	mm	in.	mm	in.	mm	lb	kg	lb	kg
M, N, P, QC	11¾	300	2¾	70	4¼	108	3	1.4	4	1.9
B, X	13¾	350	2¾	70	4¼	108	3¼	1.5	4	1.9
G (bench)	17¾	440	3½	89	5	127	6	2.8	7	3.2
G (rack)	19	483	3½	89	3½	89	6	2.8	7	3.2

Description	Total Resistance(Ω)	Resistance Per Step	Number of Decades	Catalog Number
Decade Resistor				
1434-N	11,111	0.1 Ω	5	1434-9714
1434-M \diamond	111,110	1.0 Ω	5	1434-9713
1434-P	1,111,100	10 Ω	5	1434-9716
1434-QC	1,111,105	1 Ω /div	4 + rheo	1434-9576
1434-B	1,111,110	1.0 Ω	6	1434-9702
1434-X	111,111	0.1 Ω	6	1434-9724
1434-G \diamond	1,111,111	0.1 Ω	7	1434-9707

\diamond Federal stock numbers are listed before the Index.