

# CAPACITORS

## STANDARD

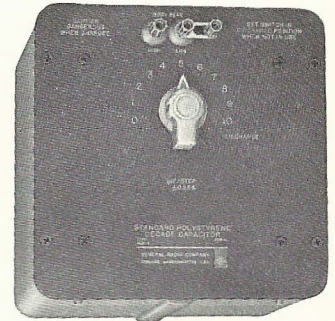


### TYPE 1424-A

### STANDARD POLYSTYRENE

### DECADE CAPACITOR

1  $\mu\text{f}$  to 10  $\mu\text{f}$



**USES:** This single-decade capacitor extends to 10  $\mu\text{f}$  the range of General Radio's accurate decade standards of capacitance. It provides ten individual standards, one at each integral microfarad value from 1 to 10. For maximum accuracy in bridge measurements, and standardization and for general laboratory use, residual series inductance and resistance have been kept to a minimum by careful design.

**DESCRIPTION:** Twenty polystyrene capacitors of 0.5  $\mu\text{f}$  each are assembled in pairs to give ten 1- $\mu\text{f}$  units. These are housed in two hermetically solder-sealed brass cases with Teflon-insulated high terminals, the cases being the common (LOW) terminal. The aluminum outer cabinet and panel are insulated from both the HIGH and LOW capacitor terminals, so that either two- or three-terminal connections can be used.

**Nominal Value:** 0 to 10 microfarads, in steps of 1 microfarad.

**Adjustment Accuracy:**  $\pm 0.25\%$  at 1 kc.

**Certificate:** A certificate is supplied giving measured values, obtained by comparison, to a precision better than .01%, with working standards maintained to an accuracy of  $\pm 0.03\%$  in terms of NBS-certified reference standards.

**Stability:**  $\pm 0.05\%$  per year.

**Frequency:** Calibrated at 1 kc. Variation with frequency down to 60 cps is typically less than  $+0.02\%$ . At higher frequencies, terminal capacitance rises as resonant frequency is approached (see curves).

**Voltage Recovery:** Less than 0.1% (see page 167).

Residual series inductance and resistance have been minimized by the use of current-sheet conductors, ribbon leads, and multiple switch contacts.

Leakage resistance is very high, corresponding to a time constant of 12 days. Consequently, a discharge position is provided on the switch to minimize the danger of electrical shock to the operator. Charging current is also limited by the switching arrangement, to avoid damage to the capacitor.

#### FEATURES:

- High accuracy.
- Low series residuals.
- Low dissipation factor.
- High leakage resistance.
- Discharge switch position provided.

#### SPECIFICATIONS

**Dissipation Factor:**  $< .0002$  at 1 kc. (See curves for variation with frequency.)

**Temperature Coefficient:** Approximately  $-140$  ppm per degree C.

**Insulation Resistance:** Approximately one million ohm-farads.

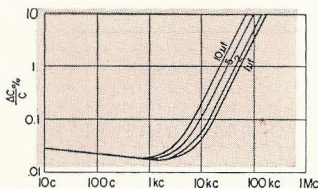
**Maximum Voltage:** 500 volts peak, up to 10 kc.

**Mounting:** Aluminum cabinet and panel, finished in gray.

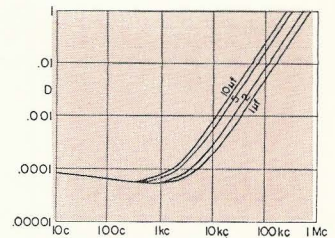
**Terminals:** A separate ground terminal is provided, permitting 2- or 3-terminal use.

**Dimensions:** Width 8, height  $7\frac{3}{4}$ , depth  $9\frac{1}{2}$  inches (203 by 195 by 241 mm), over-all.

**Net Weight:**  $16\frac{1}{2}$  pounds (7.5 kg).



Typical curves for Type 1424-A Standard Polystyrene Decade Capacitors. (Left) Change in capacitance as a function of frequency for Type 1424-A Standard Decade Capacitors. These changes are referred to the values which the capacitors would have if there were neither interfacial polarization nor series inductance. The 1-kc value on the plot should be used as a basis of reference in estimating frequency errors. (Right) Dissipation factor as a function of frequency.



TYPE  
1424-A

Standard Polystyrene Decade Capacitor . . . . .

CODE WORD  
BAIRN

PRICE  
\$325.00