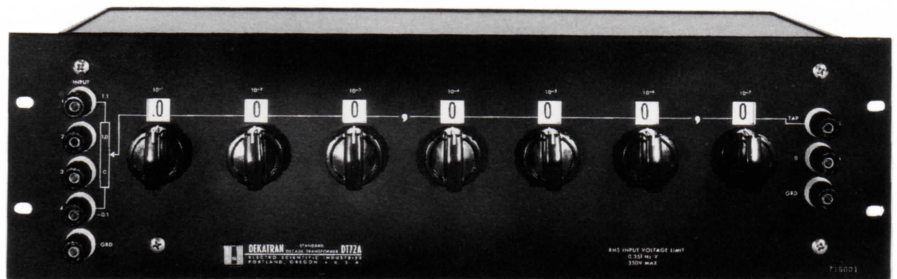

DT72A

Dekatron® Decade Transformer Standard

- 0.5 ppm Laboratory standard
- Over-windings provide additional 0.1 taps
- In-line dials and readings
- Calibration certificate supplied



The Model DT72A Dekatron® Decade Transformer Standard is a laboratory standard, transformer-type AC decade voltage divider having 0.1 ppm resolution with a seven-dial readout. Direct-reading current division with very high accuracy can also be achieved.

The accuracy of each transformer is verified by precise calibration

tests. The primary standard of voltage division is a special NIST calibrated transformer divider. Dekatron® linearity is established by comparison with this divider. Tests show linearity of the Model DT72A to be about 0.1 ppm at 400Hz.

The first decade winding of the Model DT72A transformer includes taps at -0.1 and 1.1 of input signal

to give extended phase correction capability. The -0.1 input tap and the variable winding also provide two bridge arms for making direct-reading impedance measurements. A range overlap of 10% between decades permits the setting of accurate output voltage ratios greater than 1.0 and less than 0.0 (reversed phase).

Specifications

Terminal Linearity (Initial and Long-Term)*

50Hz to 1kHz: ± 0.5 ppm (referred to input) for settings 0.1 to 1.0; $[0.5 (10 \times \text{setting})^{1/2} + 0.01]$ ppm for settings 0 to 0.1
 Above 1kHz: Multiply by f^2 /kHz
 Below 50Hz: Multiply by 50/fHz

*All setting combinations producing the same nominal output voltage remain within the stated linearity specifications.

Number of Decades

Seven

Resolution

0.1 ppm of input

Range

-0.0111111 to +1.1111110

Maximum Phase Shift

Approximately 0.05 mrad/kHz for settings above 0.1

Maximum Input Voltage

0.35 VRMS/Hz, 350V maximum

Maximum Input Current

For best performance no DC current should be permitted. DC input of $20\mu\text{A}$ will decrease AC input voltage rating about 10% and increase distortion slightly; $200\mu\text{A}$ will cause near saturation of core and serious errors.

Input Impedance

Approximately 500k Ω at 400Hz. Typical range of measured values for various dial settings, frequencies and voltages shown in curves.

Input Inductance

Approximately 100 to 400H depending on excitation.

Output Current

1A maximum

Output Impedance

Approximately 5 Ω maximum in series with 30 μH

Calibration Data

Certified test report supplied with unit gives calibration data for each step of the first three decades to better than ± 0.2 ppm.

Dimensions

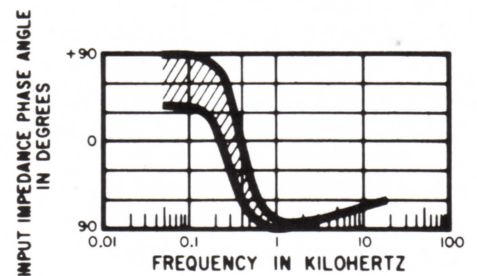
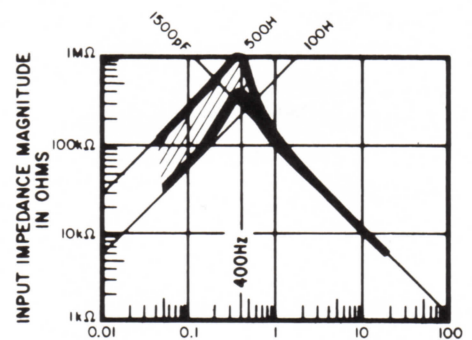
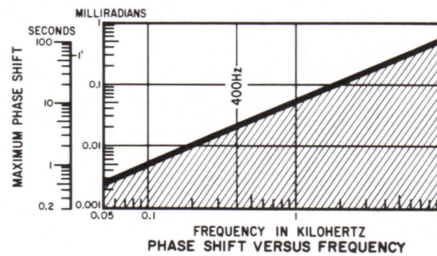
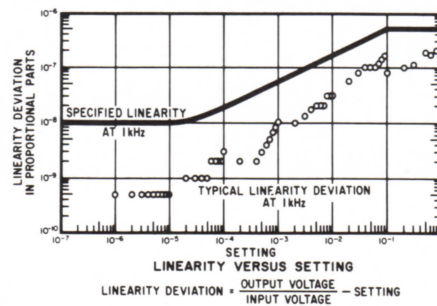
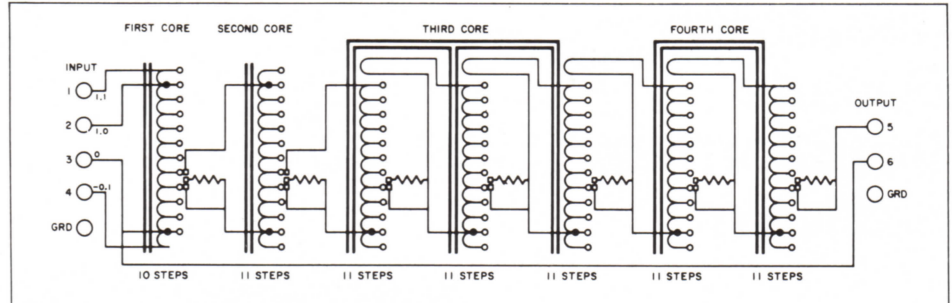
Height: 5.25 in. (13.3cm)

Width: 19 in. (48.25cm)

Depth: 7.1 in. (18cm)

Weight

18 lbs (8.1kg) net



Standard Equipment

Model DT72A comes with a 7203 Instruction Manual.