

Model DT72A

AC STANDARDS AND MEASUREMENT INSTRUMENTS

- Resolution 0.1 ppm
- Terminal linearity 0.9 ppm
- Bandwidth 50 Hz to 10 kHz
- Parallel switches reduce contact resistance
- Switch Resistors virtually eliminate switch transients
- Ratio range from -0.0111111 to +1.1111110

Decade Ratio Transformer Standard

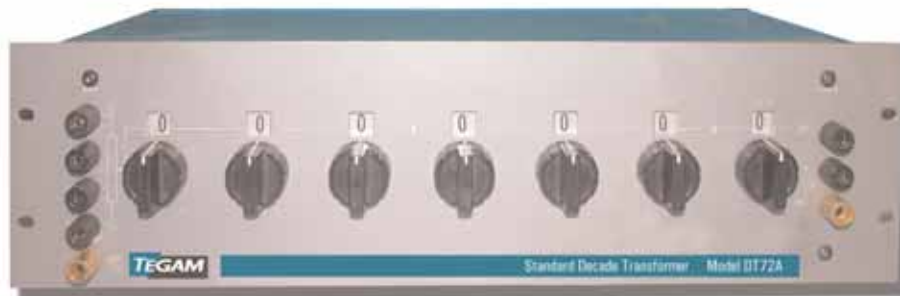
Model DT72A is an inductive voltage divider that meets or exceeds all of the requirements for a calibration standard in precision measurement applications. It is easy to integrate into systems for calibration of voltage dividers, transformer standards, synchro/resolver standards, transformers, calibrators, ammeters, and voltmeters. It can also be used to make impedance or capacitance comparisons. The ratio accuracy is traceable to the National Institute of Standards and Technology.

This variable AC voltage divider demonstrates extreme precision for measuring and generating voltage ratios. Seven decades of tapped transformer windings are selected using special low resistance switches providing 0.1 ppm resolution and 0.9 ppm terminal linearity. The key to these standards is extremely stable toroidal transformers, resulting in precision and outstanding long-term

stability over a wide range of environmental conditions. The seven in-line control knobs permit quick, easy setting of the required ratios. The first dial has end stops to prevent accidental switching from zero to full output. The other dials rotate independently through 360° of rotation to simplify the settings. The switch settings are easily read from the large-numeral in-line presentation above the knobs.

Switching transients are virtually eliminated due to a special circuit which couples the adjacent voltage steps through a resistor while the switching is taking place. The range overlap between decades is $\pm 10\%$, permitting accurate voltage ratios from 1.1 to -0.1.

The high input impedance of the DT72A makes it well suited for use in high impedance circuits without causing excessive loading.



Model DT72A

DECADE RATIO TRANSFORMER STANDARD

Specifications

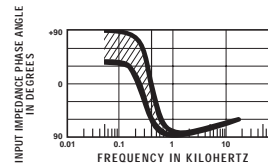
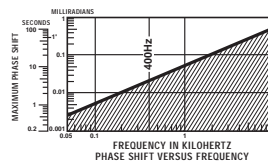
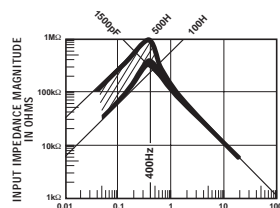
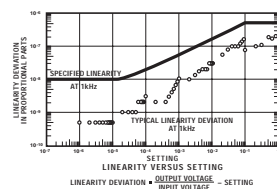
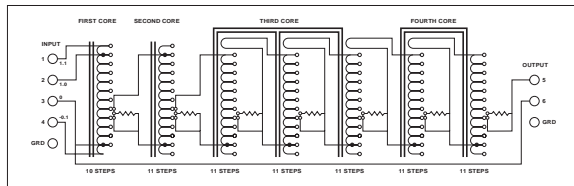
| Characteristic | DT72A Specifications |
|---|--|
| Frequency Range | 50 to 20,000 Hz |
| Maximum rms Input Voltage | 0.35f (f in Hz) or 350 volts, whichever is less. |
| Ratio Range | |
| Maximum | 1.111111 |
| Minimum | -0.0111111 |
| Maximum Phase Shift | Approx. 0.05 mrad/kHz for settings above 0.1 |
| Resolution | 0.00001% (0.1 ppm) |
| Maximum Input Current | For best performance, no DC current should be permitted. DC input of 20 μ A will decrease AC input voltage about 10% and increase distortion slightly; 200 μ A will cause near saturation of core and serious errors. |
| Terminal Linearity | 50 Hz to 1 kHz: ± 0.9 ppm (referenced to input) for settings 0.1 to 1.0 $[0.9 (10 \times \text{setting})^{1/2} + 0.01]$ ppm for settings 0 to 0.1 Above 1 kHz: multiply by f^2 in kHz Below 50 Hz: Multiply by 50/f(Hz) |
| Maximum Effective Series Output Impedance | R: approx. 5 ohms maximum L: 30 μ H |
| Input Impedance at 20 V and 400 Hz | Approximately 500 K ohms minimum |
| Input Inductance | Approximately 100 to 400 H depending on excitation. |
| Output Current | 1 A maximum |
| Dimensions | 19 in (48.3 cm) wide 5-1/4 in (13.3 cm) high 7.1 in (18 cm) deep |
| Weight | 18 lbs. (8.1 kg) net |

Standard Equipment

The model DT72A comes with a 7203 instruction manual.

Calibration & Technical Services

For warranty and remedial repair, calibration services and spare parts, or for additional information on TEGAM sales and service offices around the world, contact us at 440-466-6100 (ph) or 440-466-6110 (fx).



This data sheet was current when it was produced. However, products are constantly being updated and improved. Because of this some differences may occur between the descriptions herein and the current product. Prices and specifications may be changed without notice.



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