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Instructions

for

Using

"THE BALLANTINE RULE"



Ballantine Laboratories, Inc.

Boonton, N. J.

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VOLTS — DB POWER LEVEL

1. **Volts or Millivolts to Decibels** — Set zero DB opposite the desired voltage reference level and read DECIBELS opposite VOLTS or MILLIVOLTS.

The voltages corresponding to three commonly used power reference levels are indicated on the VOLTS scale in association with three apertures and a cursor line to facilitate accurate alignment of the scales. For other reference levels determine the voltage corresponding to the desired power reference level and set zero DB opposite this voltage.

2. **Decibels to Millivolts or Volts** — Set zero DB opposite the desired voltage reference level and read VOLTS or MILLIVOLTS opposite DECIBELS.
3. **Extension of Range** — For voltages 10^n or 10^{-n} times those shown add or subtract respectively $n \times 20\text{DB}$ to or from the values on the DB scale. Conversely, for decibel levels $n \times 20\text{DB}$ greater or less than those shown multiply the values on the voltage scale by 10^n or 10^{-n} respectively.

DB — RATIO CONVERSION

This side presents the relationships existing between decibels, voltage and current ratios (when a common impedance is involved), and power ratios.

Additionally the following subsidiary operations may be performed.

1. **Square and Square Root of a Number** — The POWER GAIN and POWER LOSS scales are the square of the VOLTAGE GAIN and VOLTAGE LOSS scales respectively.
2. **Reciprocal of a Number** — The VOLTAGE LOSS and POWER LOSS scales are the reciprocal of the VOLTAGE GAIN and POWER GAIN scales respectively and vice versa.
3. **Logarithm of a Number** — The logarithm of the VOLTAGE GAIN scale including the characteristic and the mantissa is the DECIBEL scale, divided by 20.

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