

Standard AC/DC Resistors



- Long-term stability better than 2 ppm/year (< 1 ppm typical)
- Traceable AC and DC calibrations available
- National lab design proven for more than 25 years

National laboratories around the world have long relied on the standard AC/DC resistors manufactured by Tinsley. Whether they're used in thermometry or electrical applications—with AC or DC bridges—these resistors perform better than any other AC/DC resistors available.

Six resistors in Hart's 5430 series cover resistance values from 1 ohm to 10,000 ohms. Each one has an actual resistance within 10 ppm of its nominal value and holds its resistance within 2 ppm per year.

Each resistor comes with a Tinsley certificate on AC performance, traceable to NPL in the UK, including calibration uncertainty of 3 ppm. Additionally, Hart can provide an optional DC certificate, traceable to NIST and NVLAP accredited, with uncertainty below 1 ppm.

Designed originally by a national lab, Tinsley resistors are bifilar wound to minimize reactance and are filled with oil to minimize both time- and temperature-caused instabilities. AC/DC transfer error at 90 Hz is only 1 ppm.

For maintaining your oil resistors, Hart provides baths that range from 51- to 167-liter capacity with enough inside shelf space to maintain all your standard resistors. Our 7009, 7015, and 7108

models maintain your resistors with exceptional stability (see page 110).

In our lab, we use both AC and DC bridges in addition to Super-Thermometers. We calibrate SPRTs in fixed points, and we calibrate reference resistors. We use standard resistors every day, and we understand the value of being able to rely on resistors that won't drift. Tinsley makes the best AC/DC resistors around, and Hart makes the best maintenance baths. Ask people who know. Then don't compromise.

Specifications

Tolerance	10 ppm
Calibration Uncertainty	AC: 3 ppm (10 KΩ: 4 ppm) DC: 1 ppm (optional)
Long-Term Stability	2 ppm/year
Temperature Coefficient	2 ppm/ °C
Recommended Current	1Ω: 100 mA 10Ω: 32 mA 25Ω: 20 mA 100Ω: 10 mA 1 KΩ: 3 mA 10 KΩ: 1 mA
Maximum Current	1Ω: 1 A 10Ω: 320 mA 25Ω: 200 mA 100Ω: 100 mA 1 KΩ: 32 mA 10 KΩ: 10 ma
AC/DC Transfer Error (at 90 Hz)	0.1 ppm

Ordering Information

5430-1	Resistor, AC/DC Standard, 1Ω
5430-10	Resistor, AC/DC Standard, 10Ω
5430-25	Resistor, AC/DC Standard, 25Ω
5430-100	Resistor, AC/DC Standard, 100Ω
5430-200	Resistor, AC/DC Standard, 200Ω
5430-400	Resistor, AC/DC Standard, 400Ω
5430-1K	Resistor, AC/DC Standard, 1 KΩ
5430-10K	Resistor, AC/DC Standard, 10 KΩ
1960	Cal, DC Standard Resistor

See page 110 for standard resistor maintenance bath options.