

## 1482 Series

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The 1482 is an accurate, highly stable standard of self-inductance for use as a low frequency reference or working standard in the laboratory. Records extending over 40 years, including those of inductors that traveled to national laboratories in several countries for calibration, show long-term stability well within  $\pm 0.01\%$ , typically much lower.

- A standard for national laboratories
- Stability within  $\pm 0.01\%$  per year; typically much better
- Values from 10  $\mu\text{H}$  to 10 H
- Standard for quality factor
- Low, known temperature coefficient
- Self-shielding toroidal design



Model 1482 Precision Inductor

Each inductor is a uniformly wound toroid on a ceramic core. It has a negligible external magnetic field and hence essentially no pickup from external fields. The inductor is resiliently supported in a mixture of ground cork and silica gel, after which the whole assembly is cast with a potting compound into a cubical aluminum case. Sizes

of 1 mH and above have three terminals, two for inductor leads and the third connected to the case, to provide either a two- or three-terminal standard. The 100  $\mu\text{H}$  size has three additional terminals for the switching used to minimize connection errors.

## SPECIFICATIONS

Inductance Range: See table.

Accuracy of Adjustment: See table.

Calibration: A certificate of calibration is provided with each unit, giving measured values of inductance at 100, 200, 400, and 1000 Hz, with test conditions and method of measurements specified. These values are obtained by comparison, to a precision, typically, of better than  $\pm 0.005\%$ , with standards whose absolute values, traceable to the International System of Units (SI), are known to an accuracy typically of  $\pm(0.02\%+0.1 \mu\text{H})$  at 100 Hz;  $\pm(0.1\%+0.1 \mu\text{H})$  for the 1482-B

Stability: Inductance change is less than  $\pm 0.01\%$  per year.

DC Resistance: See table for representative values. A measured value of resistance at a specified temperature is given on the certificate of calibration.

Low-Frequency Storage Factor Q:

See table for representative values of Q at 100 Hz (essentially from dc resistance). An individual value of Q is given on each certificate of calibration.

Temperature Coefficient of Inductance: Approximately 30 ppm/ $^{\circ}\text{C}$ . Small temperature corrections may be computed from resistance changes.

A 1% increase in resistance, produced by temperature increase of  $2.54^{\circ}\text{C}$  corresponds to 0.0076% increase in inductance.

Resonant Frequency: See table for representative values. A measured value is given on the certificate of calibration.

Maximum Input Power: For a rise of  $20^{\circ}\text{C}$ , 3 W; for precise work, a rise of  $1.5^{\circ}\text{C}$ , 200 mW. See table for corresponding current limits.

Terminals: 5-way binding posts with  $\frac{3}{4}$ -in spacing with removable ground strap.

Dimensions: 16.6 cm H x 16.6 cm W x 20.4 cm D (6.5" x 6.5" x 8").

Weight: 5.3 kg (11.5 lb) net, 6 kg (13 lb) shipping.



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Description	Nominal Inductance	Adjustment Accuracy (%)	*Resonant Frequency (kHz)	*dc Resistance ( $\Omega$ )	*Q at 100 Hz	mA rms for:	
						200 mW	3 W
1482-AA	10 $\mu$ H	$\pm 1\%$	4500	0.03	0.75	2500	9000
1482-A	50 $\mu$ H	$\pm 0.5$	3100	0.039	0.81	2260	8770
1482-B	100 $\mu$ H	$\pm 0.25$	2250	0.083	0.76	1550	6010
1482-C	200 $\mu$ H	$\pm 0.25$	1400	0.15	0.84	1150	4470
1482-D	500 $\mu$ H	$\pm 0.1$	960	0.38	0.83	725	2810
1482-E	1 mH	$\pm 0.1$	800	0.84	0.75	490	1890
1482-F	2 mH	$\pm 0.1$	580	1.52	0.83	360	1400
1482-G	5 mH	$\pm 0.1$	320	3.8	0.83	230	890
1482-H	10 mH	$\pm 0.1$	220	8.2	0.77	156	600
1482-J	20 mH	$\pm 0.1$	145	14.5	0.87	117	450
1482-K	50 mH	$\pm 0.1$	84	36.8	0.85	74	280
1482-L	100 mH	$\pm 0.1$	71	81	0.78	50	192
1482-M	200 mH	$\pm 0.1$	39.0	109	1.15	43	166
1482-N	500 mH	$\pm 0.1$	24.5	280	1.12	27	103
1482-P	1 H	$\pm 0.1$	14.6	616	1.02	18	70
1482-Q	2 H	$\pm 0.1$	10.6	1125	1.12	13.3	52
1482-R	5 H	$\pm 0.1$	6.8	2920	1.08	8.3	32
1482-T	10 H	$\pm 0.1$	4.9	6400	0.98	5.6	22

\*Representative values. Actual values given on certificate

ORDERING INFORMATION

1482-9700	1482-AA Standard Inductor, 10 $\mu$ H	1482-9710	1482-J Standard Inductor, 20 mH
1482-9701	1482-A Standard Inductor, 50 $\mu$ H	1482-9711	1482-K Standard Inductor, 50 mH
1482-9702	1482-B Standard Inductor, 100 $\mu$ H	1482-9712	1482-L Standard Inductor, 100 mH
1482-9703	1482-C Standard Inductor, 200 $\mu$ H	1482-9713	1482-M Standard Inductor, 200 mH
1482-9704	1482-D Standard Inductor, 500 $\mu$ H	1482-9714	1482-N Standard Inductor, 500 mH
1482-9705	1482-E Standard Inductor, 1 mH	1482-9716	1482-P Standard Inductor, 1 H
1482-9706	1482-F Standard Inductor, 2 mH	1482-9717	1482-Q Standard Inductor, 2 H
1482-9707	1482-G Standard Inductor, 5 mH	1482-9718	1482-R Standard Inductor, 5 H
1482-9708	1482-H Standard Inductor, 10 mH	1482-9720	1482-T Standard Inductor, 10 H

