1482 Series

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 ±0.01%., typically <10 ppm/year.

Features:

- A standard for national laboratories
- Stability within ±0.01% per year and typically <10 ppm/year
- Values from 1 µH to 10 H
- Standard for quality factor (Q)
- Low, known temperature coefficient
- Self-shielding toroidal design
- Calibrated at multiple frequencies
- Ceramic non-magnetic core

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.

Values of 500 µH and above have three terminals, 2 for inductor leads and the third connected to the case, to provide either a 2 or 3 terminal standard.

Inductors with <500 µH inductance values have three additional terminals to allow for switching between a short circuit and the inductance value which minimizes connection errors. This allows the user to perform short compensation without disconnecting leads from the inductor. A ground strap is moved to the L_O terminal when short compensation is performed and back to L for measurement of the inductance. When the same connections are used in both measurements, the inductance value is independent of the external lead inductance even for values much less than 200 µH. The calibrated value of the inductor is L - L_O .

Model 1482 500 µH and above Precision Inductor

Model 1482 <500 µH Precision Inductor

SPECIFICATIONS

Inductance Range: See table

Accuracy of Adjustment: Adjustment is performed at one specific frequency, see table for accuracy and adjustment frequency.

Calibration: A certificate of calibration is provided with each unit, giving measured values of inductance at 100, 200, 400, 1000 Hz and 10 kHz(for values < 2 mH), with test conditions, temperature and method of measurement specified.

These values are typically obtained by comparison, to primary 1482s whose absolute values are traceable to an SI. Measurement uncertainties are typically better than ±(0.02%) at all frequencies.

Measurement uncertainties are listed on the calibration certificate.

Stability: Inductance change is less than ±0.01% per year.

DC Resistance: See table for typical 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 typical 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/°C. Small temperature corrections may be computed from resistance changes.

A 1% increase in resistance, produced by temperature increase of 2.54°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. Effective series inductance increases with frequency and this is detailed in GR Experimenter Nov. 1952.

Typically a 1% increase in inductance can be expected if used at 1/10th of resonant frequency.

Maximum Input Power: For a rise of 20°C, 3 W; for precise work, a rise of 1.5°C, 200 mW. See table for corresponding current limits.

Terminals: 5-way gold-plated, tellurium-copper binding posts that feature low resistance. Terminals have standard ¾-in spacing with removable gold-plated ground strap.

Dimensions: 16.6 cm H x 16.6 cm W x 20.4 cm D

(6.5" H x 6.5" W x 8" D)

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

1482 Series

Description	Nominal Inductance	Adjustment Accuracy (%)	Adjustment Frequency (kHz)	*Resonant Frequency (kHz)	*dc Resistance (Ω)	*Q at 100 Hz	mA rms for: 200 mW	3 W
1482-AAA	1 µH	±5%	10	22,500	0.006	0.15	5000	16000
1482-AA	10 µH	±1%	10	7500	0.03	0.30	2500	9000
1482-A	50 µH	±0.5	10	3100	0.039	0.85	2260	8770
1482-B	100 µH	±0.25	10	2250	0.083	0.76	1550	6010
1482-C	200 µH	±0.25	10	1400	0.15	0.84	1150	4470
1482-D	500 µH	±0.1	1	960	0.38	0.83	725	2810
1482-E	1 mH	±0.1	1	800	0.84	0.75	490	1890
1482-F	2 mH	±0.1	1	580	1.52	0.83	360	1400
1482-G	5 mH	±0.1	1	320	3.8	0.83	230	890
1482-H	10 mH	±0.1	1	220	8.2	0.77	156	600
1482-J	20 mH	±0.1	1	145	33.5	0.87	117	450
1482-K	50 mH	±0.1	0.1	84	36.8	0.85	74	280
1482-L	100 mH	±0.1	0.1	71	81	0.78	50	192
1482-M	200 mH	±0.1	0.1	39.0	109	1.15	43	166
1482-N	500 mH	±0.1	0.1	24.5	280	1.12	27	103
1482-P	1 H	±0.1	0.1	14.6	616	1.02	18	70
1482-Q	2 H	±0.1	0.1	10.6	1125	1.12	13.3	52
1482-R	5 H	±0.1	0.1	6.8	2920	1.08	8.3	32
1482-T	10 H	±0.1	0.1	4.9	6400	0.98	5.6	22

*Typical values. Actual values given on certificate

ORDERING INFORMATION

1482-9699	1482-AAA Standard Inductor, 1 µH	**1482-9710**	1482-J Standard Inductor, 20 mH
1482-9700	1482-AA Standard Inductor, 10 µH	**1482-9711**	1482-K Standard Inductor, 50 mH
1482-9701	1482-A Standard Inductor, 50 µH	**1482-9712**	1482-L Standard Inductor, 100 mH
1482-9702	1482-B Standard Inductor, 100 µH	**1482-9713**	1482-M Standard Inductor, 200 mH
1482-9703	1482-C Standard Inductor, 200 µH	**1482-9714**	1482-N Standard Inductor, 500 mH
1482-9704	1482-D Standard Inductor, 500 µH	**1482-9716**	1482-P Standard Inductor, 1 H
1482-9705	1482-E Standard Inductor, 1 mH	**1482-9717**	1482-Q Standard Inductor, 2 H
1482-9706	1482-F Standard Inductor, 2 mH	**1482-9718**	1482-R Standard Inductor, 5 H
1482-9707	1482-G Standard Inductor, 5 mH	**1482-9720**	1482-T Standard Inductor, 10 H
1482-9708	1482-H Standard Inductor, 10 mH		