

LionMount LD Series Decade Inductance Boxes

Sold throughout the world to governments, educational authorities and industry



LD Series Features

- > Wide range of values
- > Accuracy 1%
- > Wide range of applications
- > Range 100mH – 10H

Guildline LD Series Decade Inductance Boxes include the Type LD1 which has a maximum Value of 11.11 H adjustable in 1 mH steps. This unit, together with others described over leaf, have accuracies listed in this table, with best values of Q lying between 3 KHz and 100 KHz.

Each decade is comprised of one ferrite pot core tapped at ten points, and with this arrangement of winding a long term stability of 0.2% can be expected, with Q values between 100 and 250 attainable.

As with all inductors having a magnetic core, the applied voltage depends largely on the frequency for any given winding, and in these units the voltage should be restricted according to the figures over leaf to avoid saturation of the core and overheating.

LD Series provides a cost effective variable inductance design for a wide range of applications.

The residual inductance is 1.6 mH, and as a guide to the effects of D.C. polarizing current on the incremental inductance, figures are given for a 10% and 20% reduction in inductance with a specified current flowing through the whole winding.

Decade	Accuracy at 1 kHz
x1 H	1%
x 0.1 H	1%
x 0.01 H	1%
x 0.001 H	3%
x 0.0001 H	5%

Applications

Design of passive wave filters and tuned circuits. Teaching of electrical fundamentals. Phase and frequency compensation networks.

LD Decade Inductance Boxes

LD Specifications

INCREMENTAL INDUCTANCE

Percentage reduction in incremental inductance compared with values at zero polarization		Decade Setting			
		10x 1 H	10x 0.1 H	10x 0.01 H	10x 0.001 H
10% Reduction	Polarizing Current	1.63 mA	8.1 mA	78 mA	310 mA
20% Reduction	Polarizing Current	2.55 mA	13.5 mA	110 mA	365 mA

SELF CAPACITANCE OF INDUCTORS (all values in pF)

SWITCH POSITION										
Range	1	2	3	4	5	6	7	8	9	10
0.001H	160	109	53	45	41	38	33	33	32	31
0.01H	310	140	120	110	100	90	85	84	81	79
0.1H	380	216	160	140	130	120	120	110	110	110
1H	550	250	230	200	150	150	150	140	140	140

TYPICAL VOLTAGES AT 10 KHz and MAXIMUM CURRENTS

Decade Setting	10x 1H	10x0.1H	10x0.01H	10x0.001H
Voltage	16 V	5 V	3 V	1 V
Max. Current	50 mA	100 mA	160 mA	400 mA

These voltages are taken for very low flux densities (10 gauss) and can be increased by about five times before non-linearity become apparent. For other settings of the decades, the applied voltage can be calculated from $V_n = V_{10} \div \text{SQT}(10/n)$ where V_{10} is the voltage as given above, and n is the switch position.

Type	LD1	LD2	LD3	LD4	LD5	LD8	LD9	LD10	LD11
Min. Step	1mH	1mH	10mH	100mH	1H	100uH	1mH	100uH	100uH
Max. Value	11.11H	10mH	100mH	1H	10H	1.111H	1.11H	1mH	111mH
No. of Decades	4	1	1	1	1	4	3	1	3

LD Series Ordering Information

LD/Type Decade Inductance Boxes
Certificate of Conformance (included)
Report of Calibration (extra charge)

GENERAL SPECIFICATIONS

Dimensions

4 Decade 8 H x 7.6 W x 30.5 D cm (3.25 H x 3 W x 12 D in.)
3 Decade 8.2 H x 7.6 W x 23 D cm (3.5 H x 3 W x 9 D in.)
1 Decade 9 H x 7.6 W x 9.5 D cm (3.5 H x 3 W x 3.75 D in.)

Weight

4 Decade 1.25 Kg (2.75 lbs)
3 Decade 1.02 Kg (2.25 lbs)
1 Decade 0.45 Kg (1.0 lbs)

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