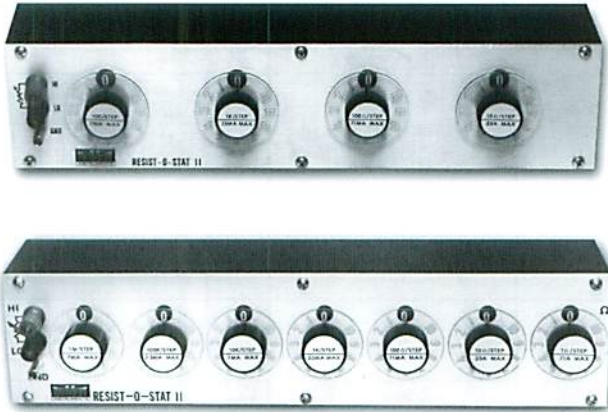


Resistance Decades

Universal resistance decade boxes engineered for high accuracy and long life in the laboratory or on the production line.

**MANY MODELS
SUITABLE FOR RTD
SIMULATION.**



PRECISION INSTRUMENTS IN A CHOICE OF TWO SERIES MAKE IT POSSIBLE TO SPECIFY A UNIT THAT MEETS BOTH APPLICATION AND COST REQUIREMENTS.

Both the RDS Series and the DA Series are quality instruments based upon the General Resistance ultra-precision wirewound resistor that General Resistance has been producing for almost 50 years. Models may be selected which offer 111.111 megohm resistance, accuracy to $\pm 0.01\%$, resolution to 0.01Ω and up to 7 decades. The technical differences between the two product series are capsuled at left.

COMPARATIVE FEATURES

RDS SERIES

- Accuracies .01% or 0.025%
- 4, 5, 6 or 7 decades
- "Top of the line" GR performance
- Rotary switches, gold-plated contacts, low contact R
- OEM models available on special order

DA SERIES

- Accuracies .01, 0.1 or 1.0%
- 3, 4, 5, 6 or 7 decades
- Less than one-half the cost of RDS units
- Easy-to-use, economical thumbwheel switches
- Two mechanical configurations

RESIST-O-STAT MODELS (RDS SERIES): Available in two versions with basic accuracies of either $\pm 0.025\%$ or $\pm 0.01\%$. Resistors used are low reactance types permitting the RDS to be used from dc through audio frequencies. Zero resistance is $0.0015\Omega/\text{decade}$. Numerical readout is positive and in-line. Switches are low noise "thermal-free" types with self-cleaning contacts.

DIAL-AN-OHM UNITS (DA SERIES): Reliable performance at less than one-half the cost of the RDS models, through the use of thumbwheel switches rather than RDS rotary switches. As can be seen under "How to Order" on the back page, the DA Series offers a choice of two mechanical configurations— bench-top and a OEM.

GR DECADE BOXES AS RTD SIMULATORS

The RDS and DA models listed below perform effectively as RTD Simulators:

RDS-41, 42, 43, 52, 53, 63, 64, 74, 75

DA-31, 32, 33, 42, 52, 53, 63, 64, 74, 75

Review of Tables I and II will permit the choice of the model that is appropriate for each application. Choice of model must be made on the basis of accuracy, resolution and total resistance. There is a General Resistance instrument for virtually any RTD system.

NOTE: When the ultimate in accuracy is required, it is strongly recommended that the General Resistance RTD-100X or RTD-100 RTD Simulator be used. These two units bear all inclusive "no-adder" accuracy statements of $\pm 0.005\%$ and $\pm 0.01\%$ respectively.

All resistance decades are limited in effectiveness when used as RTD simulators because of Zero resistance. The accuracy of a resistance Decade instrument is quoted as a deviation from Zero resistance. And, while this phenomenon can be compensated for, it will not be compensated for in most cases. Zero resistance, accordingly, can contribute significantly to the inaccuracy of simulation or calibration in an RTD application and is usually the largest contributor to such inaccuracy.

(For example: Model RDS-52A with $\pm 0.01\%$ basic accuracy can be off by as much as $\pm 0.019\%$ at a setting of 100 because of Zero resistance and contact resistance effects.)



Innovators and manufacturers of ultra-precision test instruments used as laboratory standards and for critical process monitoring.



SPECIFICATIONS—TABLE I

	Resist-O-Stat (RDS)		Dial-An-Ohm (DA)		
			High Accuracy ("X" Version)	Basic Model	Economy ("N" Version)
Resistance Range	Depends on Model Selected. See Resistance Range Table.				
Resolution	Depends on Model Selected. See Resistance Range Table.				
Accuracy of Setting (deviation from "zero" resistance)	Suffix A: $\pm(0.01\%+.0015\Omega)$ Suffix B: $\pm(0.025\%+.004\Omega)$		$\pm(0.01\%+.010\Omega)$	$\pm(0.1\%+.015\Omega)$	$\pm(1\%+.030\Omega)$
"Zero" resistance, Ω /decade	0.0015 max		<---0.015 typ/0.025 max--->		
Resistor tempco \pm ppm/ $^{\circ}$ C 10 Ω and below 100 Ω and above	15 5		10 typ./20 max. 3 typ./5 max.	10 typ./20 max. 3 typ./5 max.	60 typ./100 max.
Resistor Stability(\pm ppm) 24 hours 1 year	— 25		10 max 35 max	10 max 35 max	100 max
Resistor power coefficient/watt (\pm ppm)	500 (10 Ω and below) 200 (100 Ω and above)		225	450	500
Resistor power rating, watts (max.)	0.5@125 $^{\circ}$ C		0.2	0.33	0.5
Switch life rating, operations	>100,000		<--- >50,000 --->		
Breakdown voltage, (Vrms max.)	1500		<--- 750 --->		
Decade voltage limits	300 VDC max./resistor		<--- 300 VDC max./resistor --->		
Dimensions (HxWxD) – in. (mm)	4 X 17 X 3 1/8 (102 x 432 x 79)		<--- Depends on configuration. --->		

RESISTANCE RANGES—TABLE II

# of Decades	RDS & DA Availability with Resolution and Max R.							DA ONLY
	.1*-10**	1-100	10-1K	100-10K	1K-100K	10K-1M		
3	31 111 Ω [†]	32 1.11K	33 11.1K	34 111K	35 1.11M	36 11.1M		
DAs and RDSs								RDS ONLY
4	.01-10 41 111.1 Ω	.1-100 42 1.111K	1-1K 43 11.11K	10-10K 44 111.1K	100-100K 45 1.111M	1K-1M 46 11.11M	10K-10M 47 111.1M	
5		.01-100 52 1.1111K	.1-1K 53 11.111K	1-10K 54 111.11K	10-100K 55 1.1111M	100-1M 56 11.111M	1K-10M 57 111.11M	
6			.01-1K 63 11.1111K	1-10K 64 111.111K	1-100K 65 1.111,11M	10-1M 66 11.111,1M	100-10M 67 111.111M	
7				.01-10K 74 111.11,1K	1-100K 75 1.111,111M	1-1M 76 11.111,11M	10-10M 77 111.1111M	

Example:
LSD-MSD: 1-10K
Model: 54
Max R.: 111.11K

HOW TO ORDER

Resist-O-Stat:

SELECT BASIC MODEL NUMBER FROM TABLE II. First half of number identifies number of decades, second half of number indicates power of 10 of most significant digit ($10^2=1000\Omega$ /step).

SELECT ACCURACY.

Suffix "A": \pm 0.01%
Suffix "B": \pm 0.025%

RDS-41 A
 (Basic Model) (Accuracy)

Dial-An Ohm:

SELECT BASIC MODEL NUMBER FROM TABLE II. First half of number identifies number of decades, second half of number indicates power of 10 of most significant digit ($10^2=1000\Omega$ /step).

ASSIGN NUMBER OF MECHANICAL CONFIGURATION DESIRED.

"1" Open back for OEM panel-mounting
"3" Cabinet model for bench use.

SELECT ACCURACY.

Suffix "X" (High):01%
Suffix "N" (Economy):1.0%
No Suffix (Standard):0.1%

(Configuration)
DA-31 - 1 X
 (Basic Model) (Accuracy)

*Resolution of LSD (Least Significant Decade) in OHMS **Resolution of MSD (Most Significant Decade) in OHMS
†Total Resistance (Max. setting every decade)



General Resistance
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