♦ PRECISION INSTRUMENTS FOR TEST AND MEASUREMENT ♦

DS1265/DS1464 DEKASTAT®

Coaxial Decade Resistor

User and Service Manual

DS1265/DS1464 im/October 2013

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WARRANTY

We warrant that this product is free from defects in material and workmanship and, when properly used, will perform in accordance with applicable IET specifications. If within one year after original shipment, it is found not to meet this standard, it will be repaired or, at the option of IET, replaced at no charge when returned to IET. Changes in this product not approved by IET or application of voltages or currents greater than those allowed by the specifications shall void this warranty. IET shall not be liable for any indirect, special, or consequential damages, even if notice has been given to the possibility of such damages.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

WARNING

OBSERVE ALL SAFETY RULES
WHEN WORKING WITH HIGH VOLTAGES OR LINE VOLTAGES.

Dangerous voltages may be present inside this instrument. Do not open the case
Refer servicing to qualified personnel

HIGH VOLTAGES MAY BE PRESENT AT THE TERMINALS OF THIS INSTRUMENT

WHENEVER HAZARDOUS VOLTAGES (> 45 V) ARE USED, TAKE ALL MEASURES TO AVOID ACCIDENTAL CONTACT WITH ANY LIVE COMPONENTS.

USE MAXIMUM INSULATION AND MINIMIZE THE USE OF BARE CONDUCTORS WHEN USING THIS INSTRUMENT.

Use extreme caution when working with bare conductors or bus bars.

WHEN WORKING WITH HIGH VOLTAGES, POST WARNING SIGNS AND KEEP UNREQUIRED PERSONNEL SAFELY AWAY.

CAUTION

DO NOT APPLY ANY VOLTAGES OR CURRENTS TO THE TERMINALS OF THIS INSTRUMENT IN EXCESS OF THE MAXIMUM LIMITS INDICATED ON THE FRONT PANEL OR THE OPERATING GUIDE LABEL.

DEKASTAT® Coaxial Decade Resistor

IET Labs. DEKASTAT decade resistors are coaxial precision switched resistance decades. The models described are typical of through panel mounting units. Other models may differ in details for specifications, but other information on this sheet is applicable to all through panel mounting DEKASTATs.

SPECIFICATION		DS 1265	DS 1365	DS 1463	DS 1464
Accuracy of Resistance	Initial	±(0.01% + 0.5 dial division) ±(0.01% + 1.5 dial division) with 10.5 Ω rheostat	±(0.01% + 7 mΩ	±(0.01% + 0.5 dial division) ±(0.01% + 1.5 dial division) with 10.5 Ω rheostat	±(0.01% + 7 mΩ)
Change from Zero Setting	Long-Term	±(0.02% + 1 dial division) ±(0.02% + 1.5 dial division) with 10.5 Ω rheostat	±(0.02% + 10 mΩ)	±(0.02% + 1 dial division) ±(0.02% + 1.5 dial division) with 10.5 Ω rheostat	±(0.02% + 10 mΩ)
Short-Term Switching Repeatability		±0.2 dial division ±0.5 dial division with 10.5 Ω rheostat	±0.5 mΩ (typical)	±0.2 dial division ±0.5 dial division with 10.5 Ω rheostat	±0.5 mΩ (typical)
Number of Decades		Two plus rheostat	Three	Three plus rheostat	Four
Total Resistance		1.2, 12, and 120 kΩ	1.2, 12, and 120 kΩ	12 and 120 kΩ	1.2, 12, and 120 kΩ
Resistance at Zero Setting (Approximate)		30 mΩ	20 mΩ	30 mΩ	20 mΩ
Breakdown Voltage (Peak to Case)		1000 V	1000 V	1000 V	1000 V
Dimensions	Width Height Depth Behind Panel	3 in. (7.6 cm) 3 in. (7.6 cm) 6.1 in. (15.5 cm) 4.9 in. (12.5 cm)	3 in. (7.6 cm) 3 in. (7.6 cm) 6.1 in. (15.5 cm) 4.9 in. (12.5 cm)	3 in. (7.6 cm) 3 in. (7.6 cm) 8.5 in. (24 cm) 6.9 in. (17.5 cm)	3 in. (7.6 cm) 3 in. (7.6 cm) 8.5 in. (24 cm) 6.9 in. (17.5 cm)
Weight		1.7 lb (800 gm)	1.7 lb (800 gm)	2.2 lb (1 kg)	2.2 lb (1 kg)

RATINGS PER STEP FOR EACH DECADE
Models DS 1265, DS 1365, DS 1463, and DS 1464

RESISTANCE PER DECADE (Ω)	SMALLEST STEP (Ω)	INCREMENTAL ACCURACY		COEFFICIENTS		MEASUREMENT DUTY** MAXIMUM RATINGS		PEAK VOLTAGE (V/step)
		INITIAL (%)	LONG-TERM (%)	TEMPERATURE (ppm/°C)	POWER (ppm/mW/step)	POWER (mW/step)	CURRENT (mA)	
10 M	1 M	0.02	0.03	5	0.3	22	0.15	300
1 M	100 k	0.02	0.03	5	0.3	220	1.5	300
100 k	10 k	0.02	0.03	5	0.3	500	7	
10 k	1 k	0.02	0.03	5	0.3	500	23	
1 k	100	0.02	0.03	5	0.3	500	71	
100	10	0.03	0.03	15	0.9	500	230	
10	1	0.1	0.12	20	1.2	500	710	
1	0.1	1.0	1.0	60	6	250	1600	
0.1	0.01	10	10	400	60	160	4000	
1050	10*	0.5 div	1 div			40	60	
105	1*	0.5 div	1 div			40	200	
10.5	0.1*	1 div	1.5 div			5	230	

*Interpolating rheostat (Ω/dial division).
**Intermittent use such that temperature rise of the resistor will not appreciably exceed that which would occur in free air.

U.S. Patents 2,786,122, D-198,163, and 3,150,634

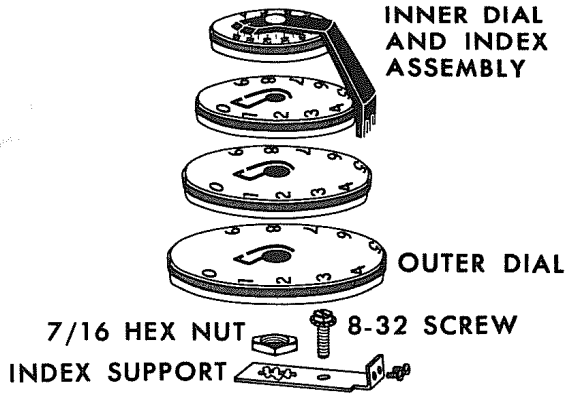
Mounting Instructions

REMOVE DIALS FROM CONTROL SHAFT

1 . **Important:** Set all dials to zero before disassembling.
2. Loosen 2 index-mounting screws .
3. Turn inner dial to approximately 30 and loosen setscrew near number 50.
4. Turn inner dial to 0 loosen setscrew near number 80
5. Lift inner dial and index assembly straight off of shaft.
6. Loosen setscrew on each of the other dials.
7. Lift each dial straight off of shaft. On hermetically sealed units, remove all '0' rings.
8. Remove 7/16 in. hexagonal nut.
9. Remove 8-32 screw and remove dial index support.

MOUNT THROUGH PANEL

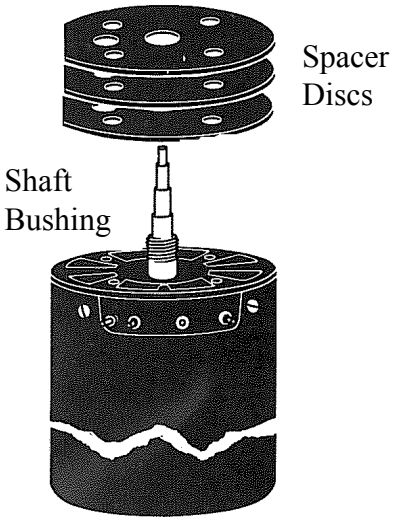
10. Drill or punch panel mounting holes either for bushing mount or four -screw mount. See pane I mounting hole diagram.
11 . Remove spacer discs, if necessary, to obtain effective panel thickness between 1/4 in. and 3/16 in. Each spacer is approximately 1/16 in. thick.
12. Insert DEKASTAT shaft and bushing through mounting hole.
13. Place index support and 7/16 in, nut over bushing and tighten finger-tight.
14. Rotate index support over hole below and to right of bushing.
15. Fasten index support to DEKASTAT-through panel with 8-32 screw.
16. If four-screw mounting is used, insert and tighten three additional 8-32 mounting screws (may be already mounted) in appropriate holes.
17. Tighten 7/16 in. nut.



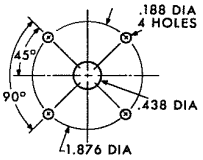
Mounting Panel

'O' Ring Seals

For Hermetically Sealed Units



Mounting Holes



REASSEMBLE

18. Place the dials on the shaft. On hermetically sealed units install '0' ring under each dial except the largest. Position the numbers so that 0 is at 9 o'clock dial index support should be between numbers 4 and 5. Do not tighten dials.
19. Place the inner dial and index assembly on the shaft with 00 lined up with index mark.
20. Line all dials up with index, being careful not to turn shafts under dials. If any dial turns the shaft, it will move a switch to a detented position. If this happens, turn the dial back to reset the switch, and try to slip it carefully to the proper position . If any dial is not lined up and will not slip easily on the shaft, remove the dials and try again to line them up as they are reassembled.
21. Pull outer dial slightly away from panel to avoid friction with bushing. Spread other dials apart evenly. On hermetically sealed units (before tightening setscrews), press dial so there is slight compression of '0' ring seals. Tighten setscrews, being careful not to turn the dials. On the inner dial tighten only the setscrew near 8 (or 80).
22. Connect a low resistance ohmmeter or low resistance bridge to the terminals to check for proper zero setting. If the resistance is more than 20 or 30 milliohms, turn the dias to find the minimum resistance. Especially check inner dials tha operate rheostats. Some rheostats have a slight detent at 00, other do not. In either case, minimum resistance should be at 00.
23. Tighten setscrew near 50 on inner dial.

schematic diagram

MODEL DS1463