

DESCO INDUSTRIES INCORPORATED

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R-Meter Calibration

EQUIPMENT:

- Digital Multimeter – accurate to 1.25% @ 10VDC and 100VDC
- Fixed Decade Box value 10E3 - 10E12 – accurate to $\pm 2.5\%$, except at 10E11 and 10E12 ($\pm 5\%$)
- Thermometer – accurate to $\pm 1^\circ\text{F}$
- Humidity meter – accurate to 2%
- R-meter test leads
- 99% Isopropyl alcohol and cleaning wipes

SET-UP:

A. Test Area - Area needs to be free of any high voltage transformer or power supply. Not under any type of fluorescent lighting or high power lighting.

B. Worksurface - needs to be covered with conductive mat at 1.0×10^3 or less, connected to earth ground.

C. Technician - needs to be grounded with zero ohms resistor to earth ground.

D. Decade Box - needs to be grounded to earth ground.

NORMALIZATION OF R-METER

Temperature inside testing area needs to be 75°F @ $\pm 6.6\%$ 40% to 60% RH. R-meters need to stay at constant temperature 75°F @ $\pm 6.6\%$ for about 2 hours for proper reading. R-meters cannot be inside objects, enclosed boxes, containers or cases unit is supplied with (temperature inside case will differ from outside temperature, cases will act like an insulator to the R-meters), R-meters will have to be stationary in testing area for about 2 hours with no dramatic temperature changes.

TESTING OF R-METER

*** Make sure when testing R-meter, units should be tested with leads supplied with R-meter. DO NOT TEST WITH SLED, sled will give a much higher reading and is only designed for spot checking.

***With 10V/AUTO switch down, press TEST button – voltage between the two leads should be $10\text{V} \pm 5\%$

***With 10V/AUTO switch up, press TEST button – voltage between the two leads should be $100\text{V} \pm 5\%$

***Using the cleaning wipes and 99% isopropyl, clean around banana jack and mono jack where leads connects to, oil from human fingers can alter accuracy.

***Make sure 10V/AUTO switch is set to AUTO (switch up). Testing each decade starting from 1.0×10^{12} and down, never start from 1.0×10^3 .

Temperature Fahrenheit = $75^{\circ}\text{F} \pm 6.6\%$
Celsius = $23.8^{\circ}\text{C} \pm 10.2\%$

Relativity Humidity ± 10 Digits

A. 1.0×10^{12}

+ 20%	LED = 12 Yellow	Mantissa 1.20
0%	LED = 12 Yellow	Mantissa 1.00
- 20%	LED = 11 Yellow	Mantissa 8.00

B. 1.0×10^{11}

+20%	LED = 11 Yellow	Mantissa 1.20
0%	LED = 11 Yellow	Mantissa 1.00
-20%	LED = 10 Green	Mantissa 8.00

C. 1.0×10^{10}

+10%	LED = 10 Green	Mantissa 1.10
0%	LED = 10 Green	Mantissa 1.00
-10%	LED = 9 Green	Mantissa 9.00

D. 1.0×10^9

+10%	LED = 9 Green	Mantissa 1.10
0%	LED = 9 Green	Mantissa 1.00
-10%	LED = 8 Blue	Mantissa 9.00

E. 1.0×10^8

+10%	LED = 8 Blue	Mantissa 1.10
0%	LED = 8 Blue	Mantissa 1.00
-10%	LED = 7 Blue	Mantissa 9.00

F. 1.0×10^7

+10%	LED = 7 Blue	Mantissa 1.10
0%	LED = 7 Blue	Mantissa 1.00
-10%	LED = 6 Blue	Mantissa 9.00

G. 1.0×10^6

+10%	LED = 6 Blue	Mantissa 1.10
0%	LED = 6 Blue	Mantissa 1.00
-10%	LED = 5 Green	Mantissa 9.00

H. 1.0×10^5

+10%	LED = 5 Green	Mantissa 1.10
0%	LED = 5 Green	Mantissa 1.00
-10%	LED = 4 Green	Mantissa 9.00

I. 1.0×10^4

+10%	LED = 4 Green	Mantissa 1.10
0%	LED = 4 Green	Mantissa 1.00
-10%	LED = 3 Red	Mantissa 9.00

J. $1.0 \times 10E3$
+10% LED = 3 Red Mantissa 1.10
0% LED = 3 Red Mantissa 1.00
-10% LED = <3 Red Mantissa <0.90