

Answer on Question #45668, Physics, Electric Circuits

Question:

A galvanometer with coil resistance 12.0Ω shows full scale deflection for a current of 2.5mA . How would you convert it into a voltmeter of range 0 to 10.0V ?

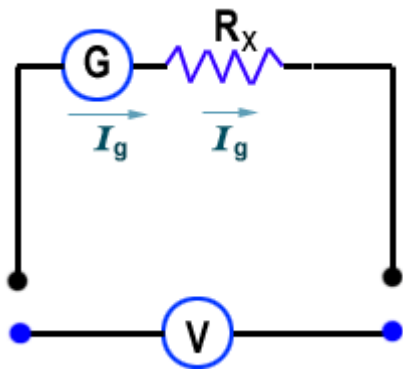
- a. 3988Ω in series
- b. 0.43Ω in parallel
- c. 2000Ω in parallel
- d. 1.62Ω in series

Answer:

Voltage on galvanometer for a current of 2.5mA :

$$U_g = IR_c = 0.03 \text{ V}$$

Therefore we need connect resistor **in series** with resistance:



$$R_x = \frac{U - U_g}{I} = \frac{U - IR_c}{I} = 3988 \Omega$$

Answer: a. 3988Ω in series