

惠斯通電橋→戴維寧等效電路

電路實驗

系級:資工二乙

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(1) P5 之表格

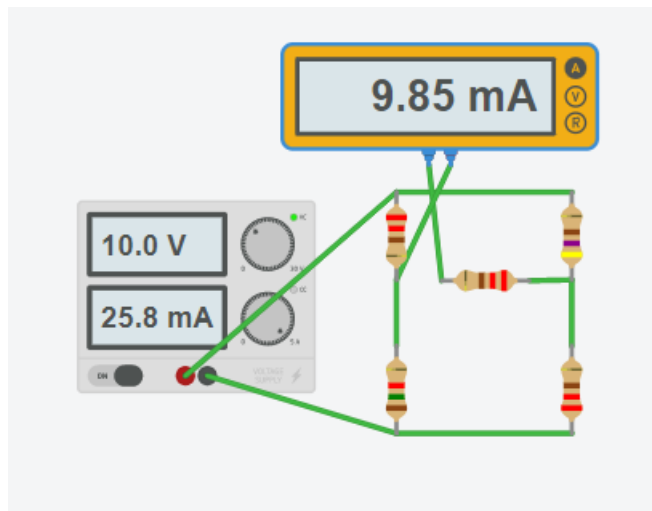
| | I_L | V_{TH} | R_{TH} | $I_{L(TH)}$ |
|-----|---------|----------|--------------|-------------|
| 量測值 | 9.85 mA | 5.53v | 342 Ω | 9.84 mA |
| 計算值 | | 5.53v | 342 Ω | 9.84 mA |

$$\begin{aligned}
 V_{TH} &= V_s * (R_2 / (R_1 + R_2)) - V_s (R_4 / (R_3 + R_4)) \\
 &= 10 * (1500 / (220 + 1500)) - 10 * (220 / (220 + 470)) \\
 &= 5.53252443(V) = 5.53(V)
 \end{aligned}$$

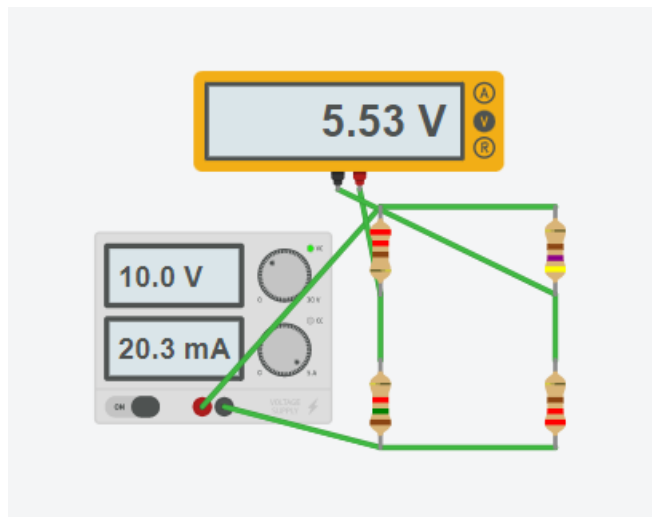
$$\begin{aligned}
 R_{TH} &= (R_1 // R_2) + (R_3 // R_4) \\
 &= (220 * 1500 / (220 + 1500)) + (470 * 220 / (470 + 220)) \\
 &= 341.715537(\Omega) = 342(\Omega)
 \end{aligned}$$

$$\begin{aligned}
 I_{L(TH)} &= V_{TH} / (R_{TH} + R_L) \\
 &= 5.53 / (342 + 220) = 0.0983985765(A) = 9.84(mA)
 \end{aligned}$$

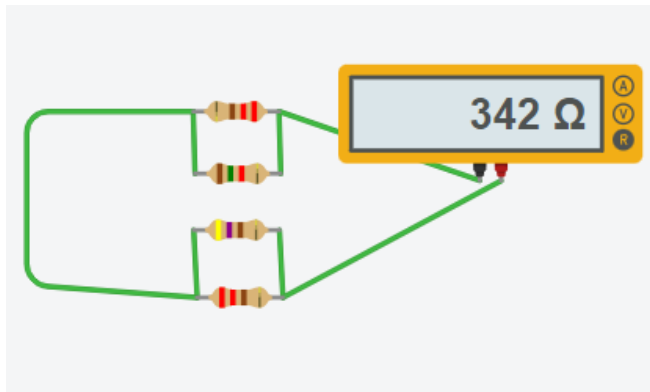
(2)step1(I_L)量測



(3)step2- $I(V_{TH})$ 量測



(4) step2-II(R_{TH})量測



(5) step3($I_{L(TH)}$)量測

