

Control panel for a power supply or oscilloscope with various knobs, switches, and input ports.

240V A.C. REGULATED SUPPLY  
BASE 41 5/24V SUPPLY

Multi-channel oscilloscope with multiple input channels and control knobs.

PATON meter with a white scale and black dial, connected to the circuit.

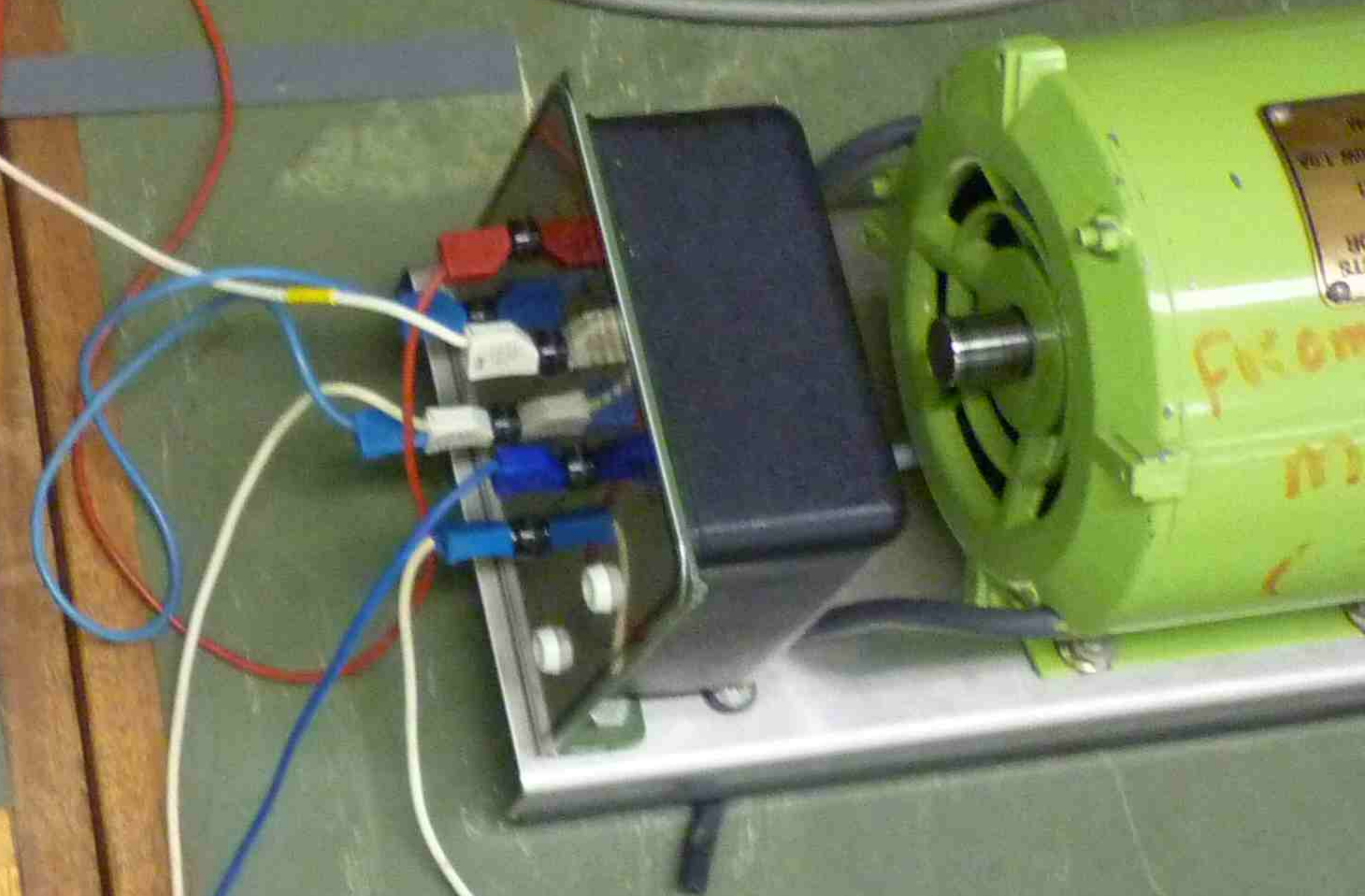
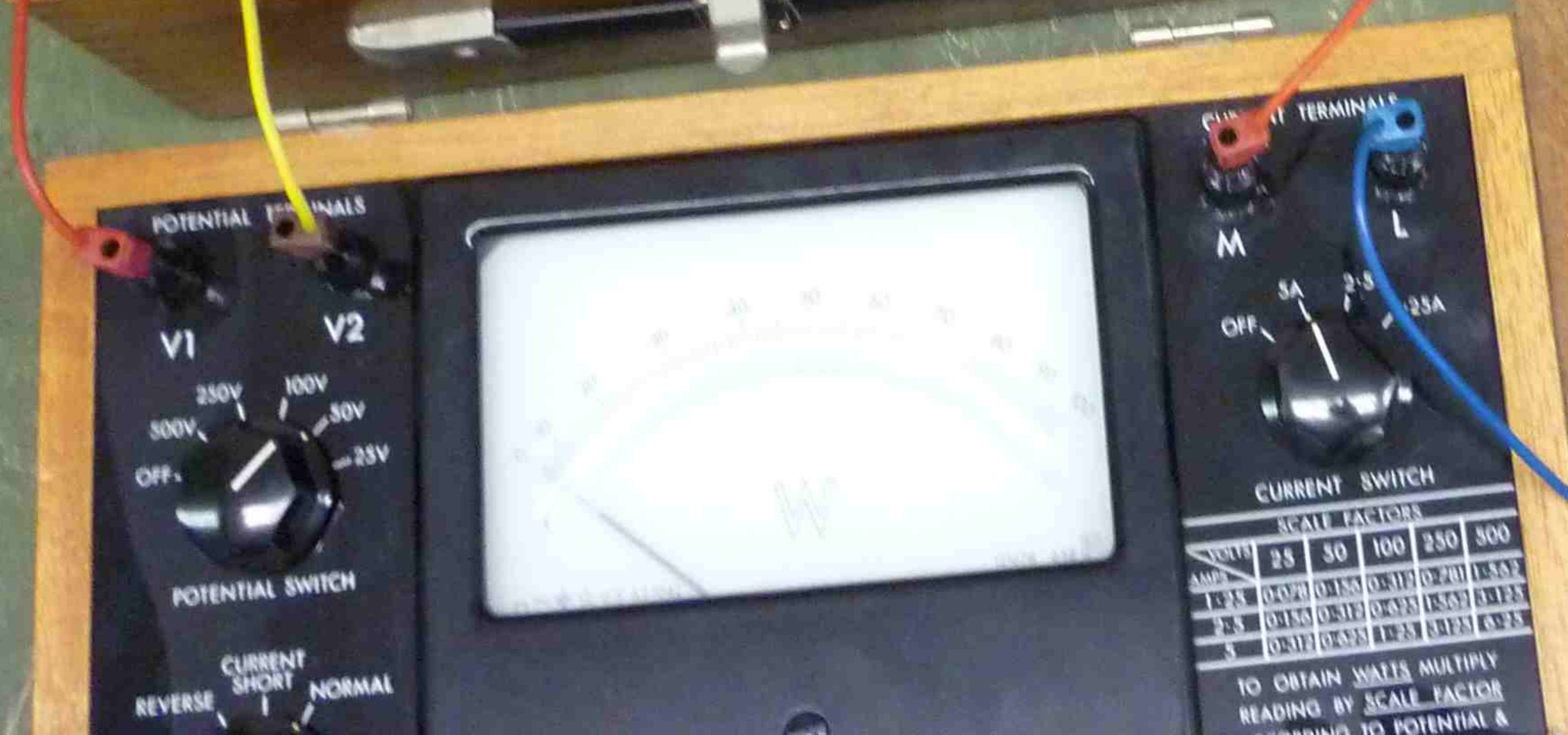
PATON meter with a white scale and black dial, connected to the circuit. Includes a current switch and potential switch.

CURRENT SWITCH				
SCALE FACTORS				
25	50	100	250	500
0-25	0-50	0-100	0-250	0-500
0-25	0-50	0-100	0-250	0-500
0-25	0-50	0-100	0-250	0-500
0-25	0-50	0-100	0-250	0-500

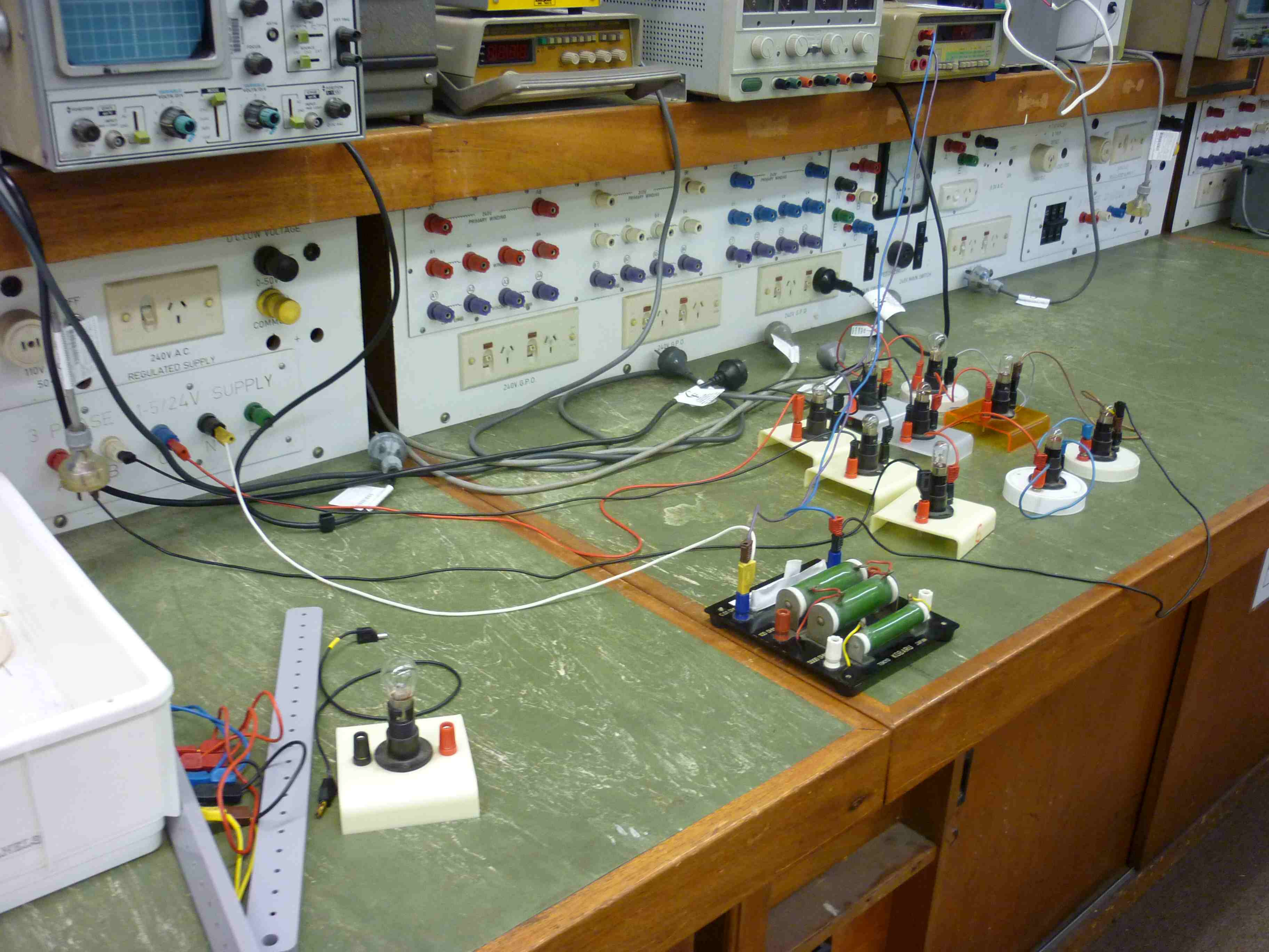
TO OBTAIN WATTS MULTIPLY READING BY SCALE FACTOR ACCORDING TO POTENTIAL & CURRENT SWITCH SETTINGS. RATED COS  $\phi = 0.75$

Green motor with handwritten text: M3.5 (1.0E)











D.C. LOW VOLTAGE

240V A.C. REGULATED SUPPLY

PHASE 41-5/24V SUPPLY

A B C N E

240V PRIMARY WINDING

240V G.P.O.

240V G.P.O.

240V G.P.O.

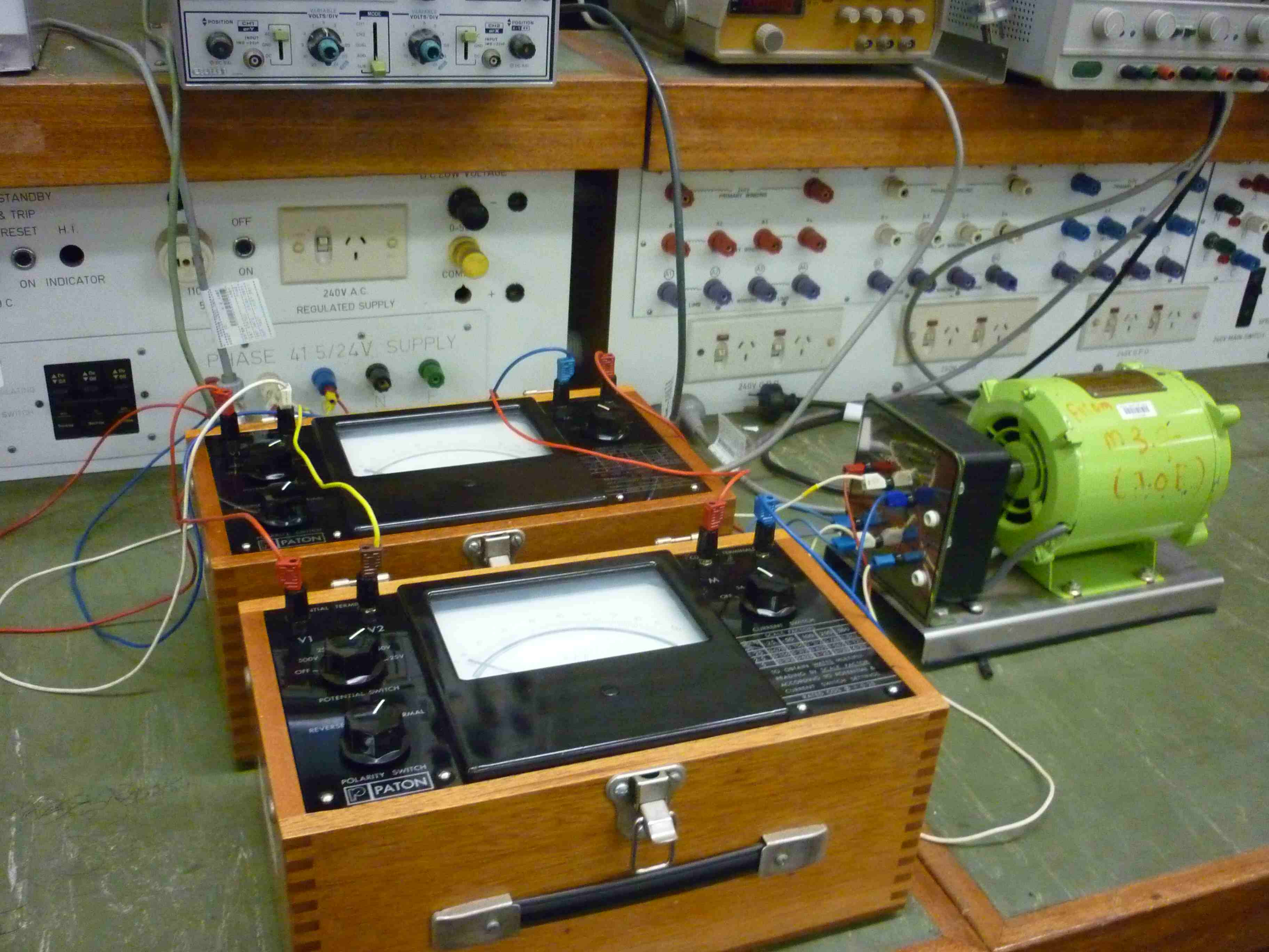
240V MAIN SW

TOKYO KOBARU JAPAN









POSITION CH1 CH2 CH3 CH4  
VOLTS/DIV  
MODE  
VOLTS/DIV  
POSITION CH1 CH2

STANDBY  
& TRIP  
RESET H.I.  
ON INDICATOR

OFF  
ON

240V A.C.  
REGULATED SUPPLY

PHASE 415/24V SUPPLY

PATON

V1  
V2  
500V  
10V  
25V  
POTENTIAL SWITCH  
REVERSE  
POLARITY SWITCH  
P  
PATON

M3.5  
(3.0A)





Digital multimeter with red LED display showing '000'. It has several colored probes connected to its input terminals.

TRIO 15MHz Oscilloscope CS-1880A. The screen shows a grid pattern. It has various control knobs and buttons.

240V AC regulated supply with multiple output terminals labeled C1, C2, C3, C4, C5, C6, C7, C8. It includes a variac control knob and a power switch.

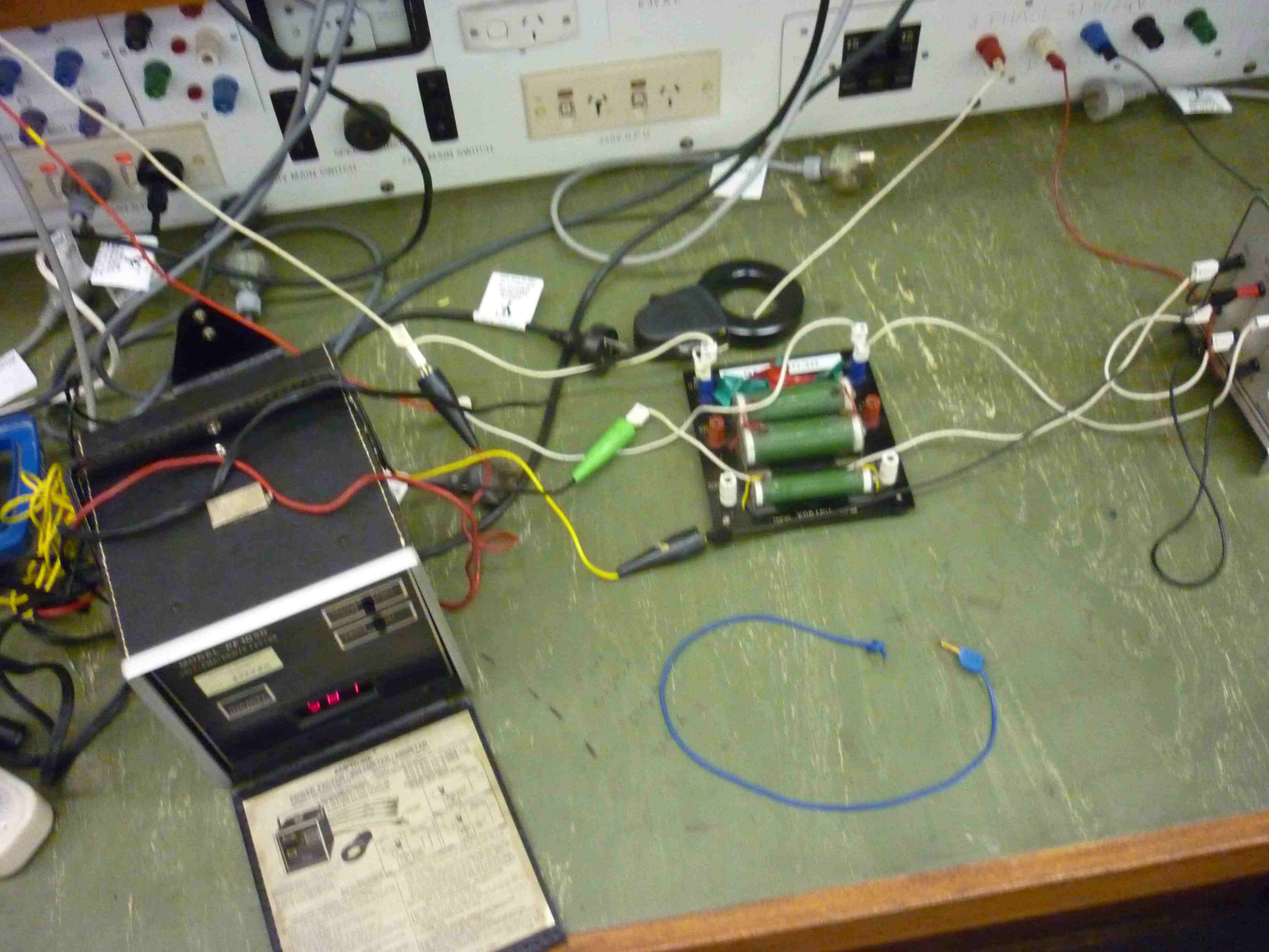
3 PHASE 415/240V SUPPLY. Features a digital display, a power switch, and several output terminals for different voltage levels (6.3V A.C., 250V D.C., 110V A.C., 240V A.C.).

3 PHASE SQUIRREL CAGE INDUCTION MOTOR. A green motor mounted on a metal base, connected to a 3-phase supply.

AMPROBE MODEL PF1050 VOLT/AMP/POWER FACTOR meter. The display shows '58.1'. It has a carrying handle and a power switch.

Instruction manual for the Amprobe Model PF1050 meter, showing a diagram of the meter and its connections.







0-280V VARIAC OUTPUT ONLY

6.3V A.C.

HT STANDBY & TRIP RESET H.T.

ON INDICATOR

250 D.C.

110V A.C.

OFF ON

240V A.C. REGULATED SUPPLY

3 PHASE 415/24V SUPPLY

ISOLATION SWITCH

240V MAIN SWITCH

240V G.P.O.

DC LOW VOLTAGE

0-50

COM

+

24

FORCLUM ELECTRICAL SERVICES P/L  
9402 124 390  
9402 124 390  
FAX 92 9788 4008

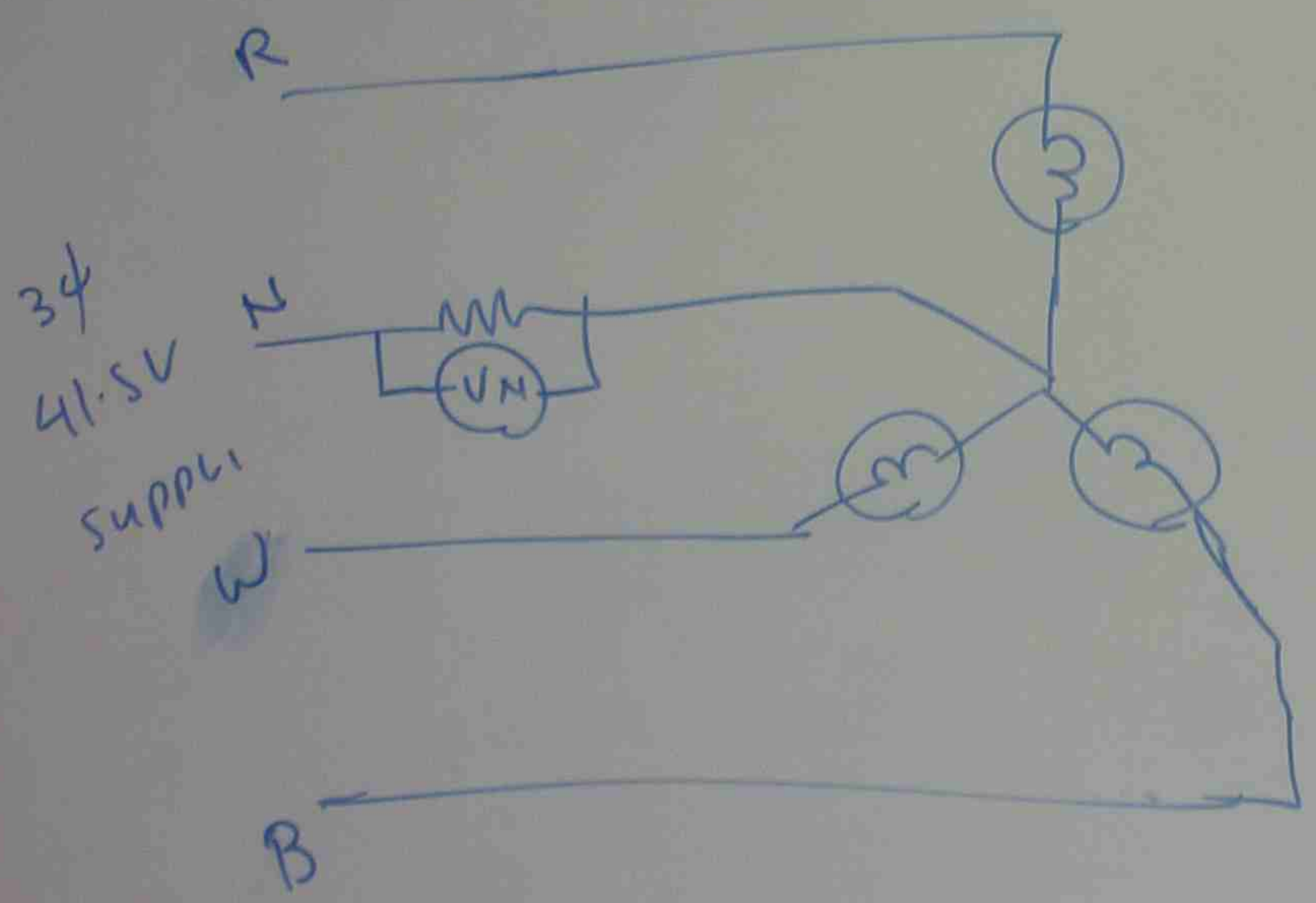
BEWARE OF REDKILL!



PRACTICAL (1)

3φ LINE & PHASE VOLTAGE MEASUREMENT

(1) CONNECT THE GIVEN CIRCUIT



(2) MEASURE THE VOLTAGES BETWEEN

- RED — WHITE
- WHITE — BLUE
- RED — BLUE

- RED — NEUTRAL
- WHITE — NEUTRAL
- BLUE — NEUTRAL

VOLTAGE ACROSS NEUTRAL RESISTOR.

CALCULATE THE CURRENT FLOWS IN TO NEUTRAL RESISTOR

$$I_N = \frac{U_N}{0.01 \Omega}$$

(2)

①

R

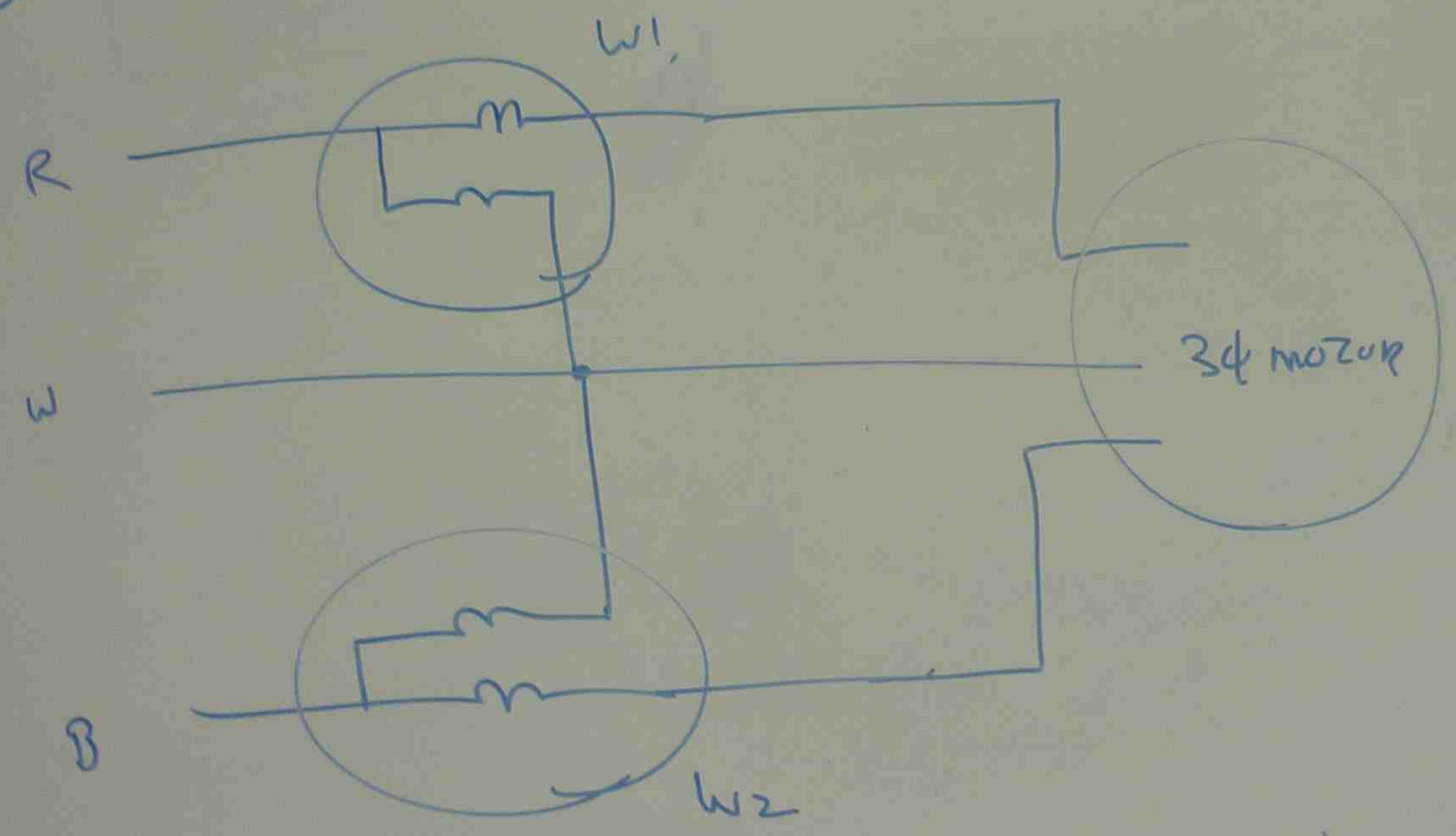
W

B



(2) 3 $\phi$  POWER MEASUREMENT BY 2 WATTS METER METHOD

① CONNECT THE GIVEN CIRCUIT



TAKE THE READINGS OF  $W_1$  &  $W_2$

TOTAL 3 $\phi$  POWER =  $W_1 + W_2$

POWER FACTOR CALCULATION

$$\tan \theta = \frac{\sqrt{3} (W_1 - W_2)}{W_1 + W_2}$$

$$\theta = \tan^{-1} \frac{\sqrt{3} (W_1 - W_2)}{W_1 + W_2}$$

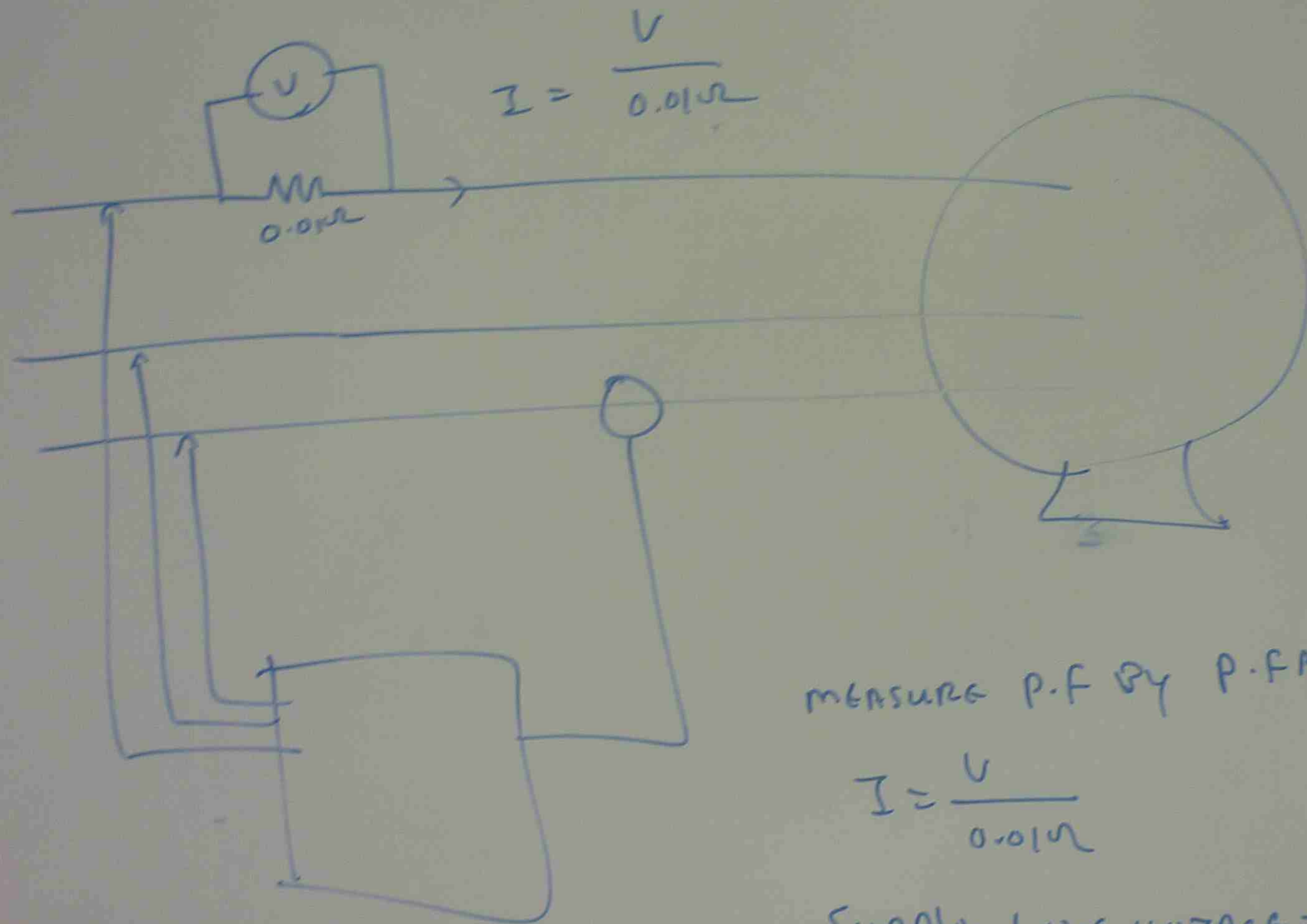
$$PF = \cos \theta$$







(3) 3 $\phi$  power measurement by power analyzer



MEASURE P.F BY P.F ANALYZER

$$I = \frac{V}{0.01\Omega}$$

SUPPLY LINE VOLTAGE = 415V

$$3\phi \text{ POWER} = \sqrt{3} \times L$$

- (Q1) JULIAN, NAOMI  
TASH, MATT
- (Q2) THREE TURN OO  
POG KATHY,
- (Q3) MATT ENGEL  
MICHAEL WALK