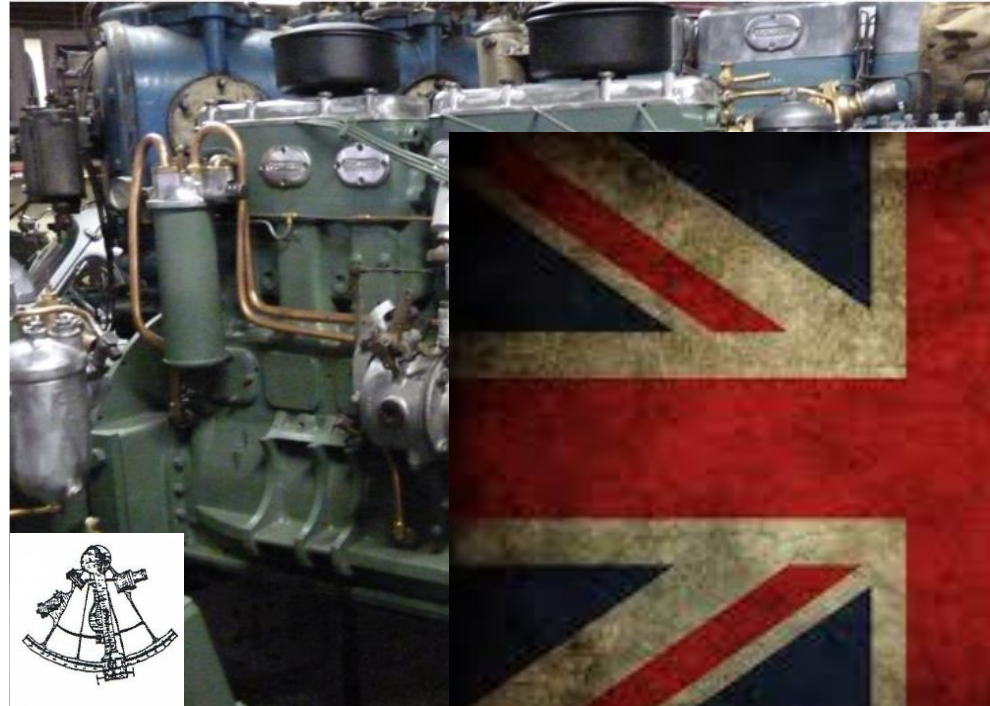
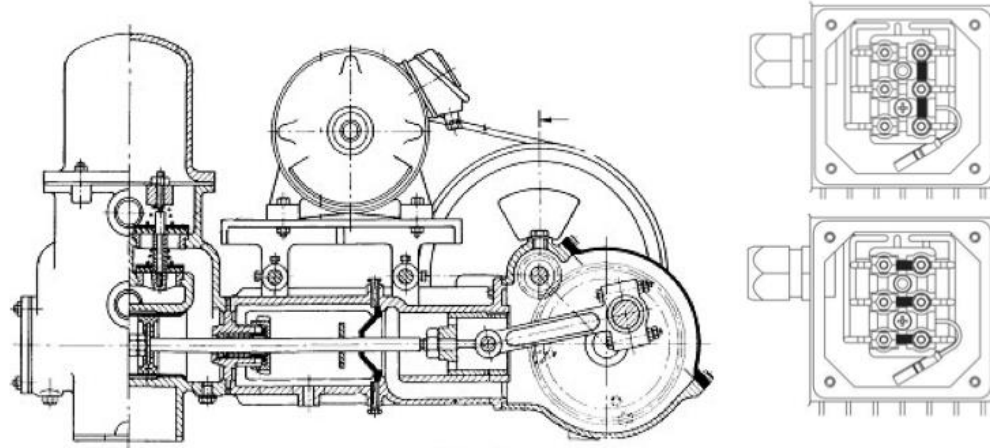


Electrical Engineering



	Information Technology	Measurement & control	energy storage	storage how?	Transfer of power (scale)			Closed circuit?
					up to 1 KW	up to 100 KW	up to 100 MW	
Pneumatics		Yes	Limited	Pressure vessel	X			No
Hydraulics			Limited (on board)	Pressure vessel		X		Yes
Electricity	Yes	Yes	Yes	Battery			X	Yes
Mechanical			Limited	Flywheel (briefly)			X	No

Important laws/formulas from DC current theory.

Ohm's law:

$$\mathbf{U=I.R}$$

(voltage = current x resistance)

Power:

$$\mathbf{P=U.I}$$

(power = voltage x current)

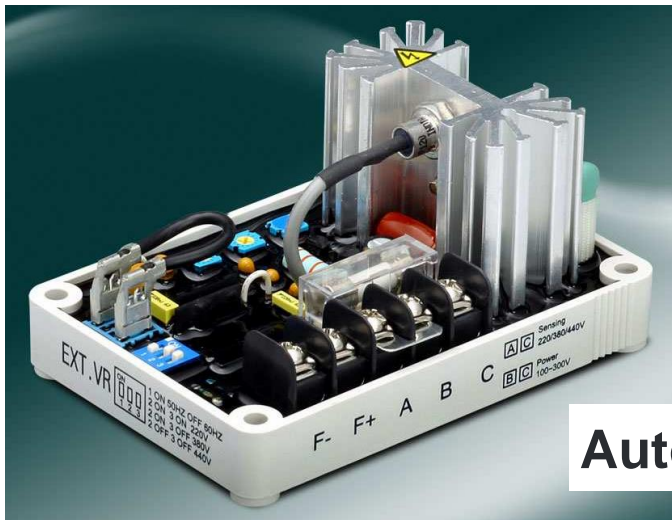
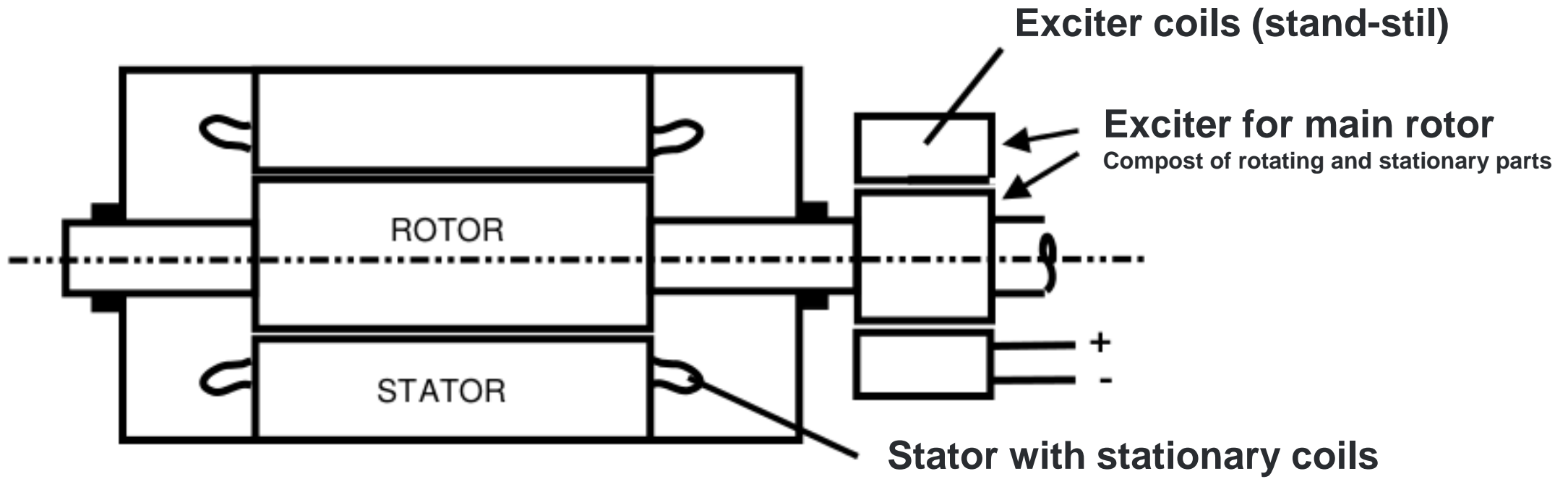
When can something "flow"?

**A. There must be a voltage source
(e.g. battery or generator);**

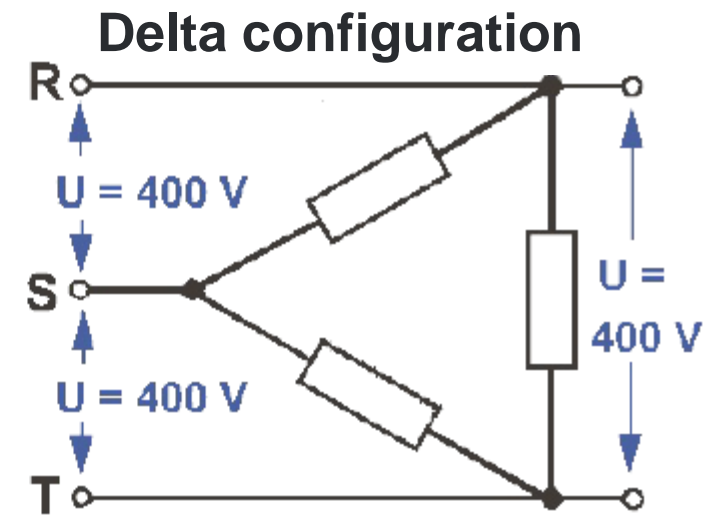
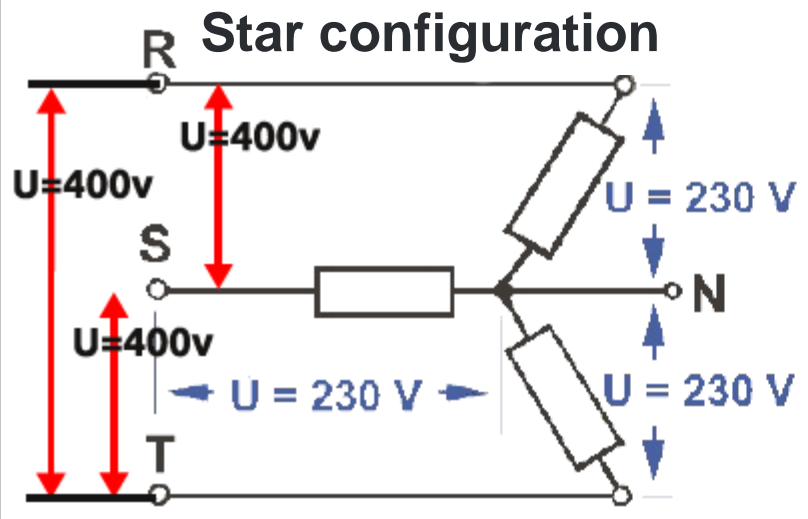
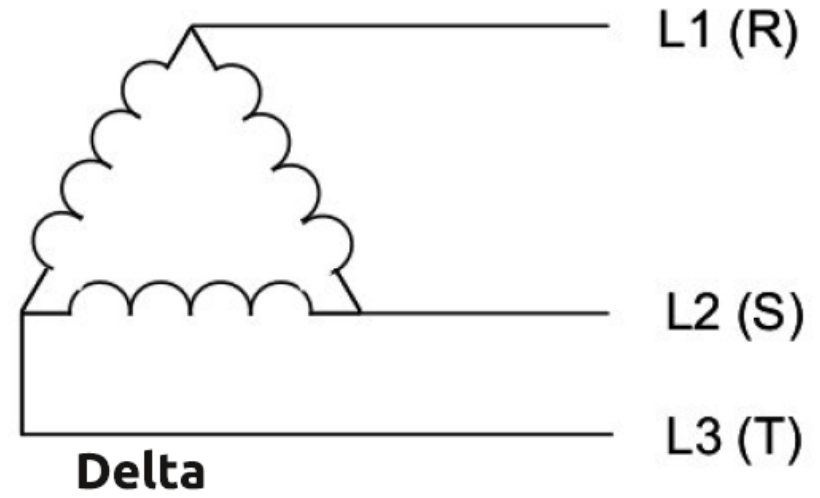
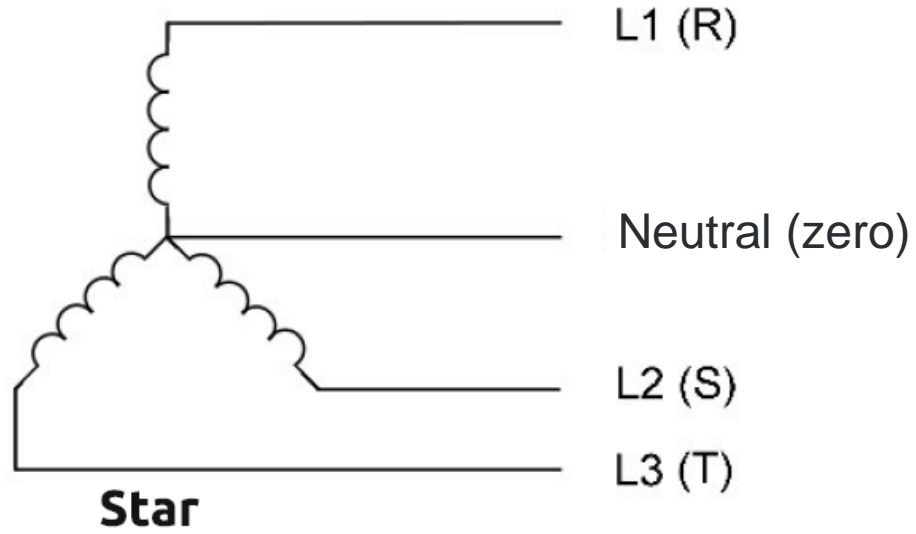
**B. There must be a 'load'
(a device that connects to the power system);**

**C. Voltage supply and load must be connected by a
conductive material in a closed loop or circuit
(how about in pneumatics and hydraulics?);**

**D. The voltage difference should run across the
load.**



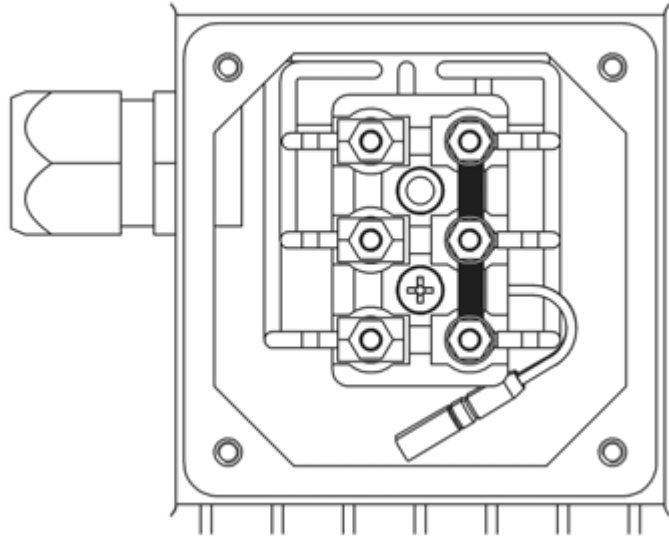
Automatic voltage regulator



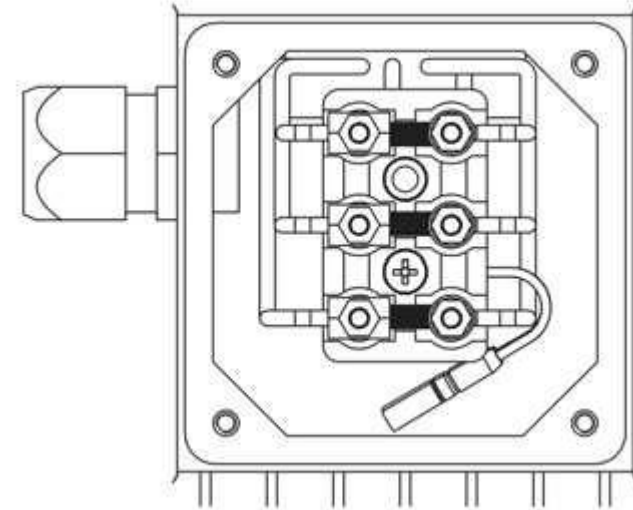
Connecting the cables on a electrical motor

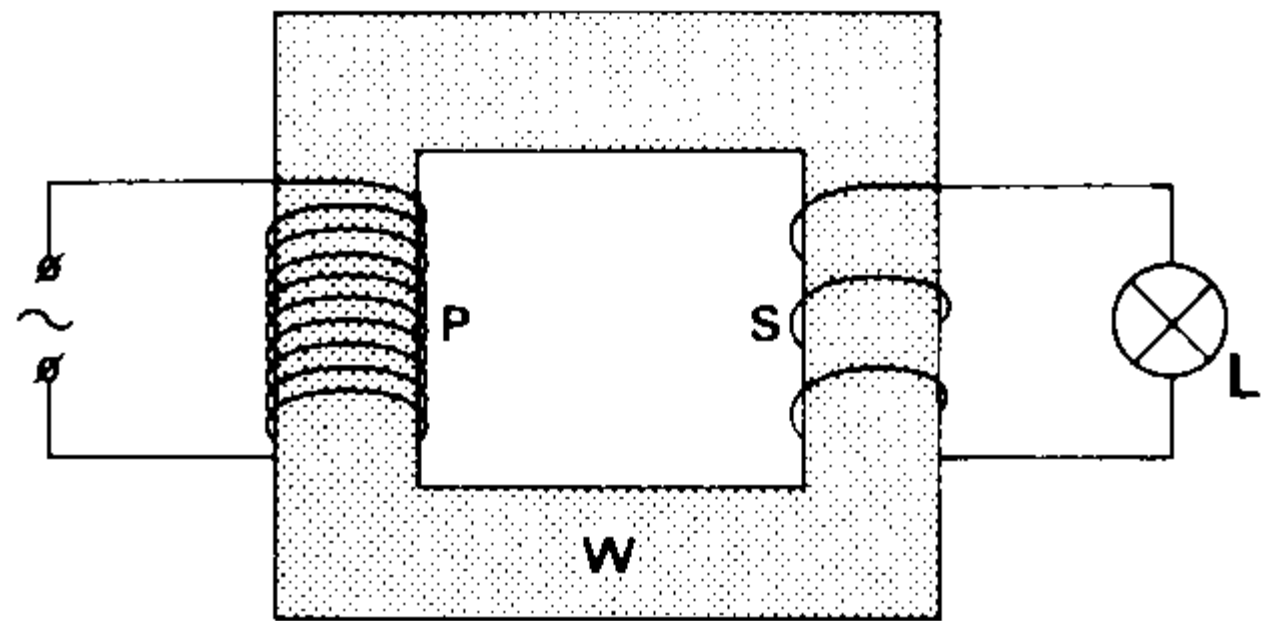
Star and Delta configuration

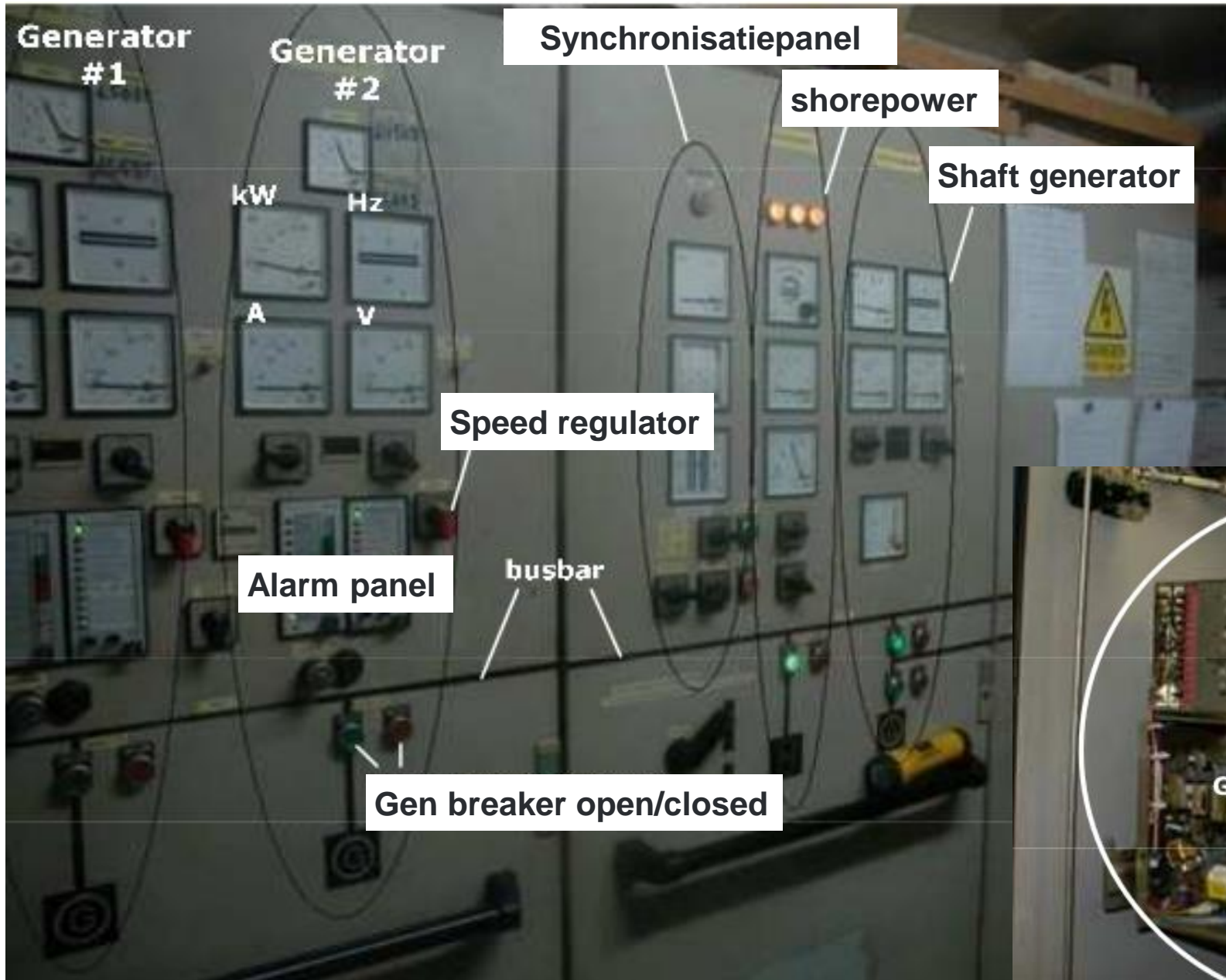
Star configuration

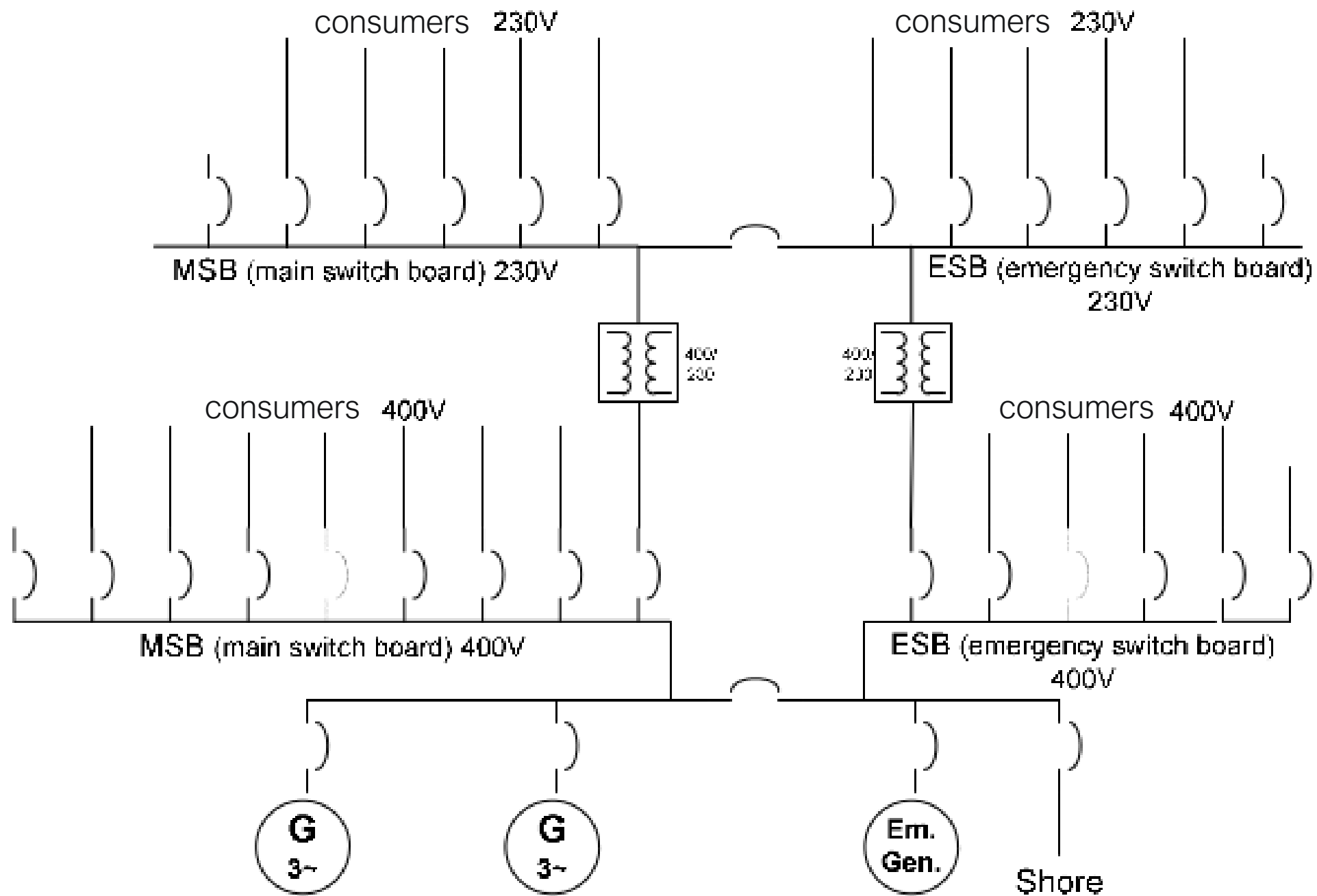


Delta configuration














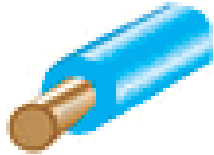
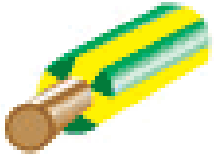







Existing Cable Colour Code

System	Phase Conductor	Neutral Conductor	Protective Conductor
Single Phase			
3 Phase	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">L1 </div> <div style="text-align: center;">L2 </div> <div style="text-align: center;">L3 </div> </div>		

New Cable Colour Code

System	Phase Conductor	Neutral Conductor	Protective Conductor
Single Phase			
3 Phase	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">L1 </div> <div style="text-align: center;">L2 </div> <div style="text-align: center;">L3 </div> </div>	