بِسْمِ ٱللَّهِ ٱلرَّحْمَٰنِ ٱلرَّحِيمِ

(وَفَوْقَ كُلِّ ذِي عِلْمٍ عَلِيمٌ)

صدق الله العظيم

Tuesday , March, 24 ,2020
9.00 AM

Sheet 5

Rectifier circuits and High voltage Measurements

Presenter:

Hossam H. H. Mousa

*H.Herzallah@eng.svu.edu.eg

Teaching assistant,
Department of Electrical Engineering
South Valley University

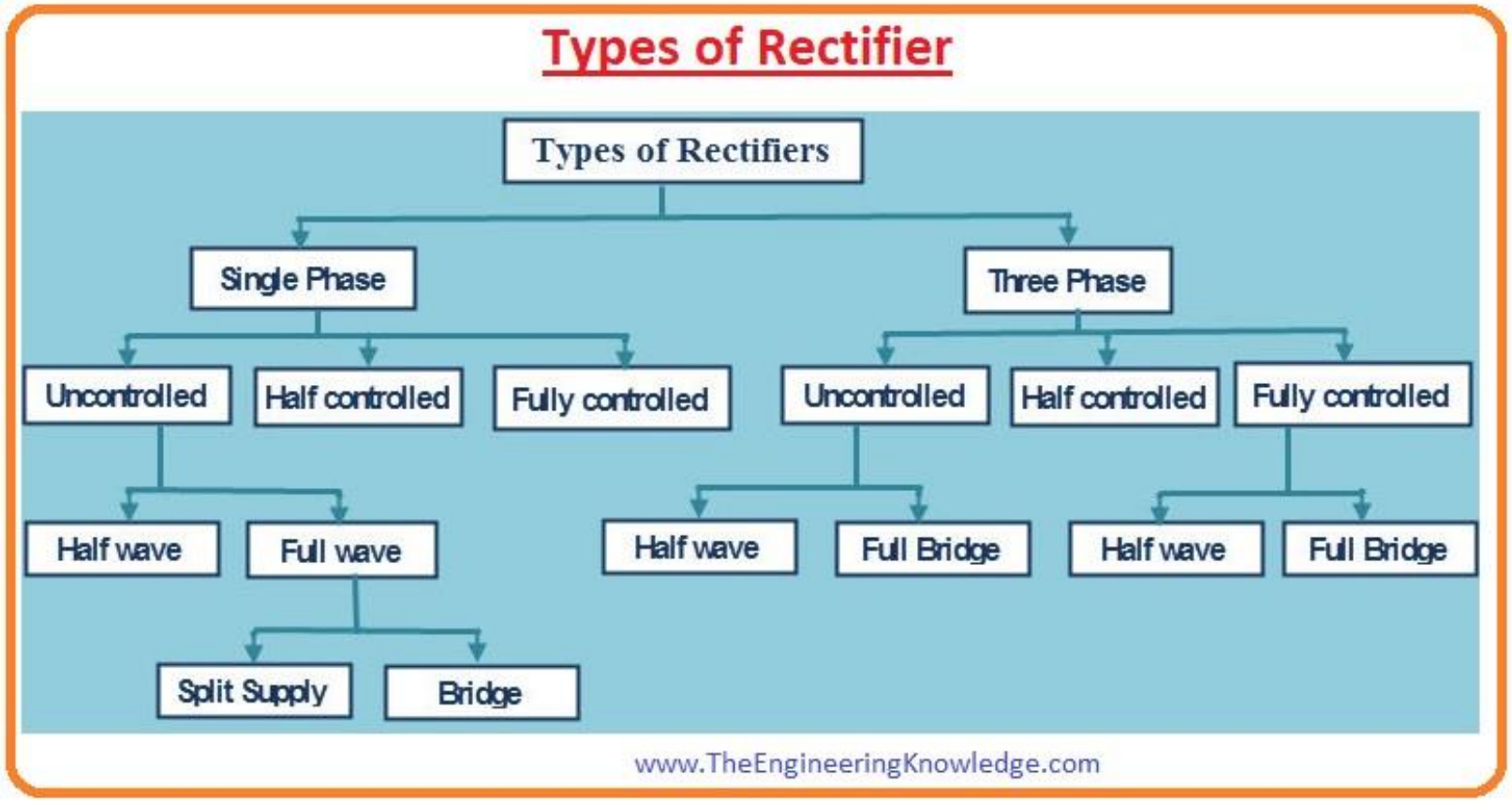
Contents

- Rectifier circuits

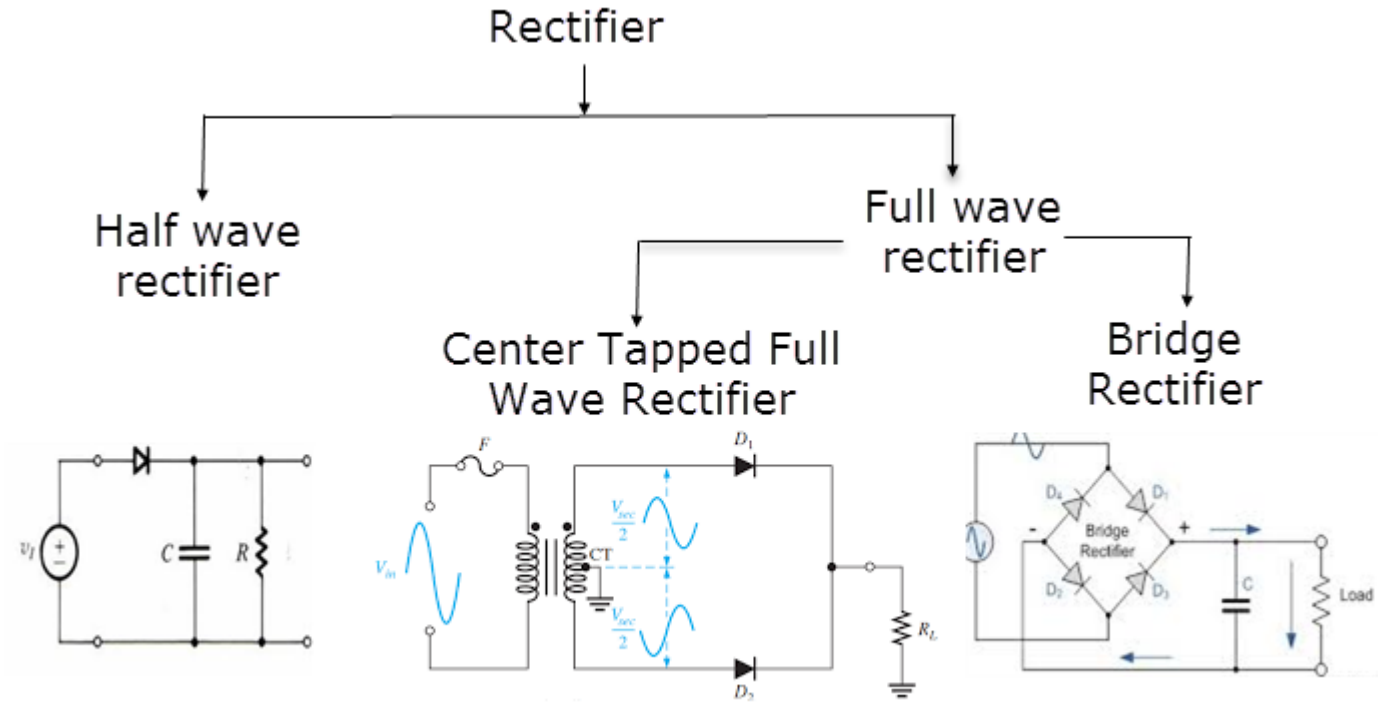
1. Half wave rectifier
2. Center-tab full wave rectifier
3. Bridge Full wave rectifier

- High voltage Measurements

Rectifier circuits

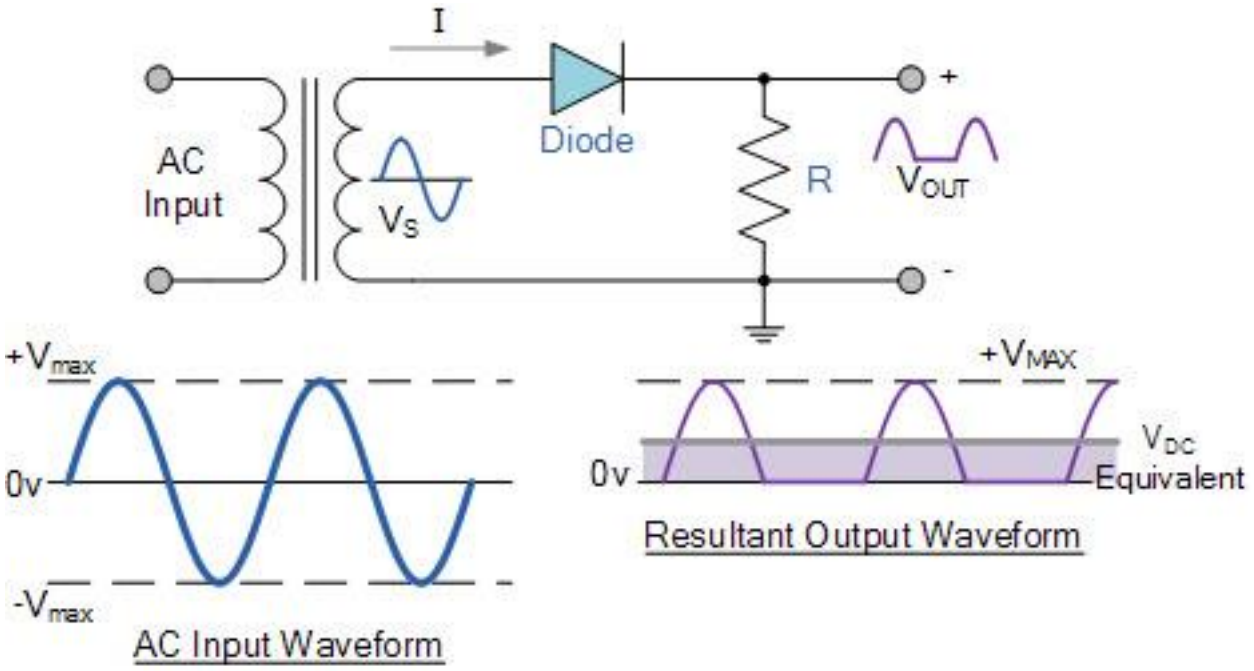


Single-phase uncontrolled rectifier circuit



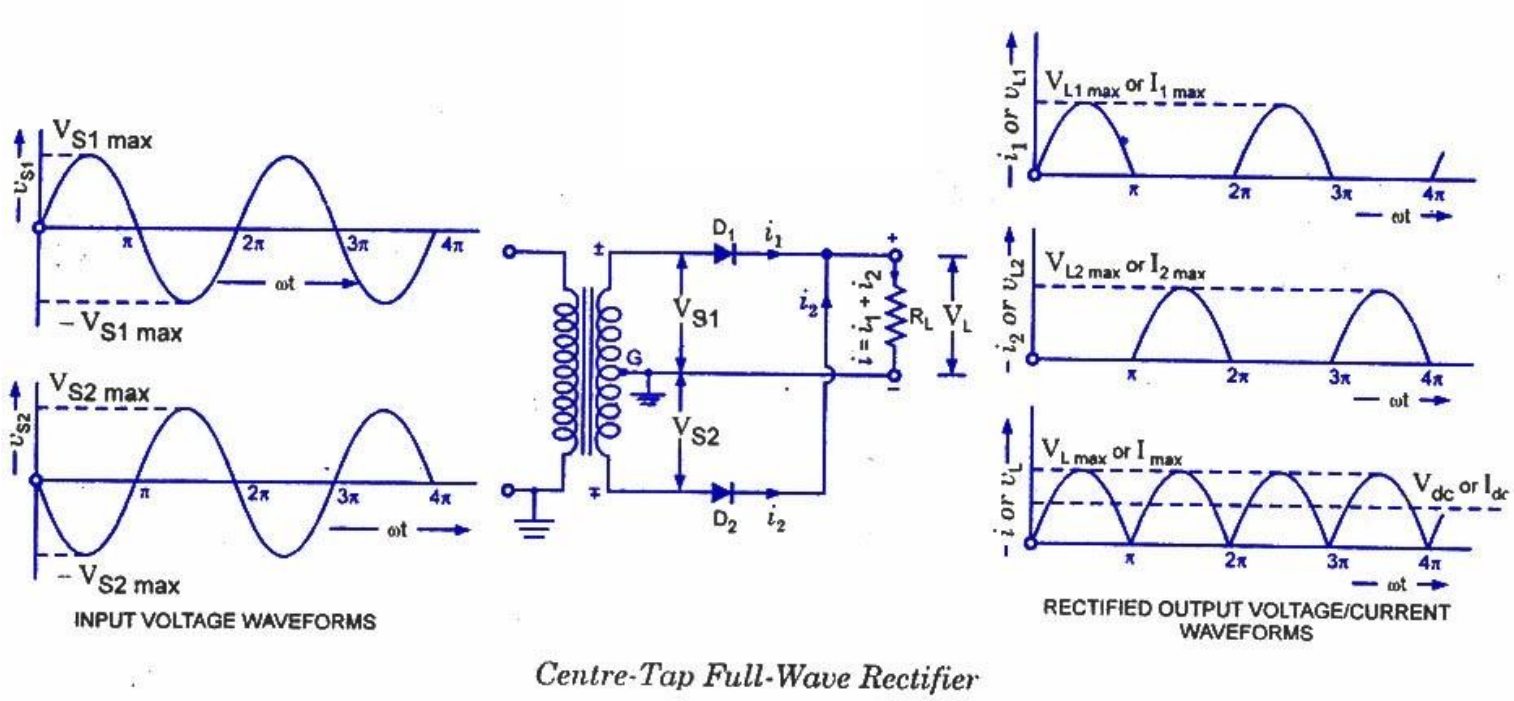
Electrical Drawing

Half wave rectifier



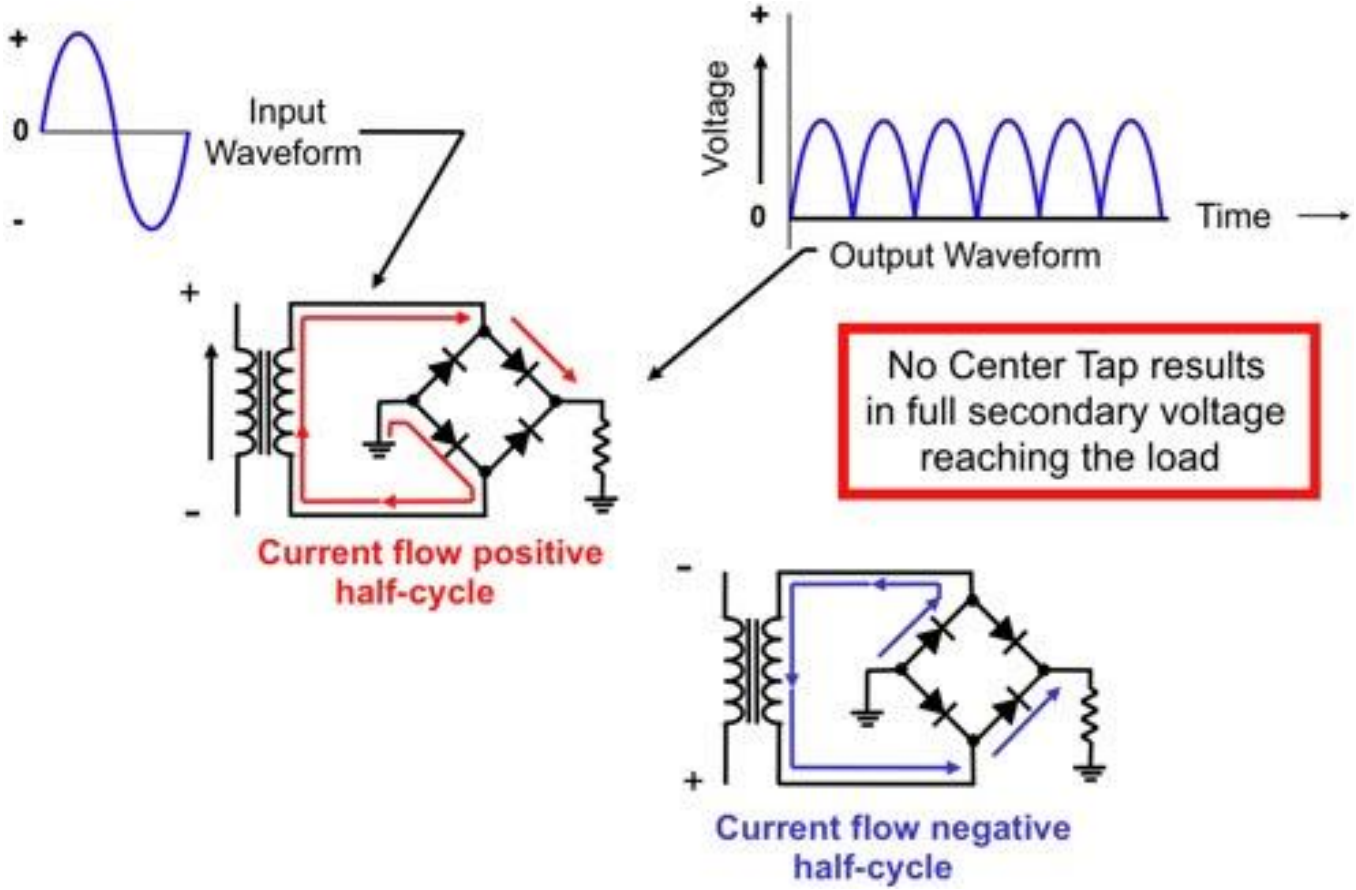
Electrical Drawing

Center-tab full wave rectifier



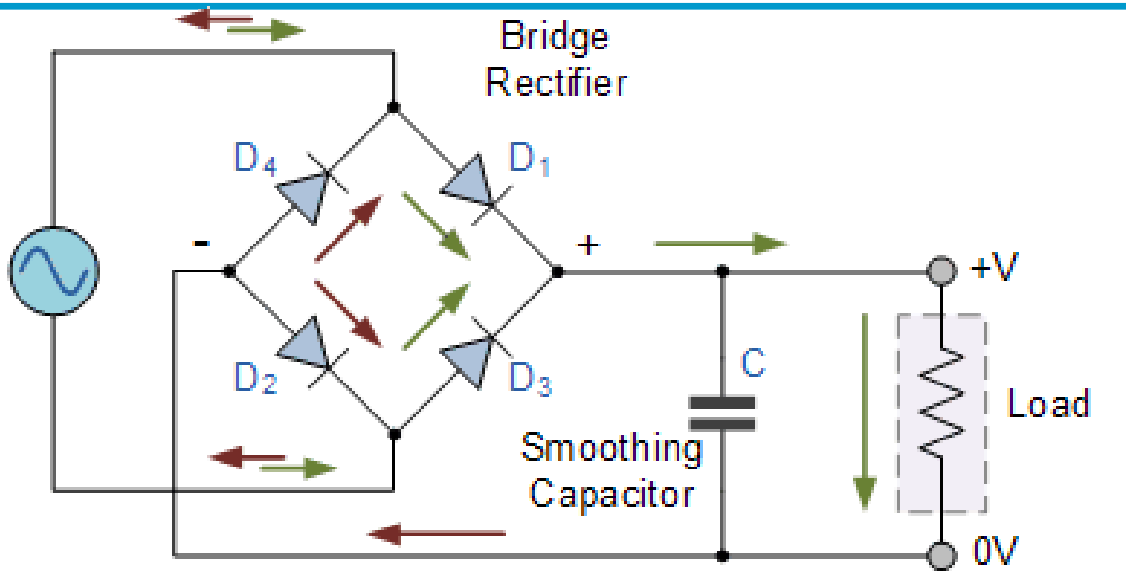
Centre-Tap Full-Wave Rectifier

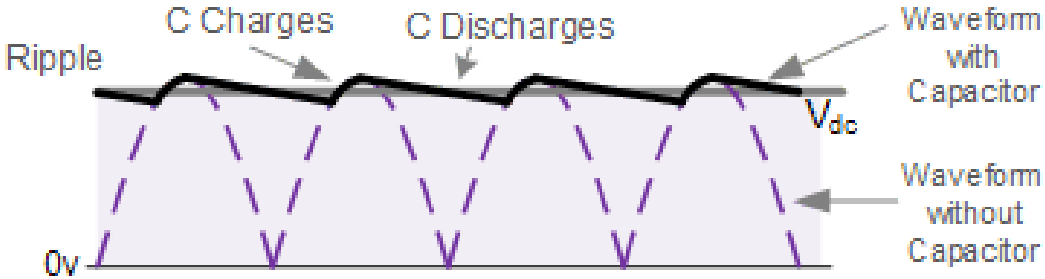
Bridge Full wave rectifier



Electrical Drawing

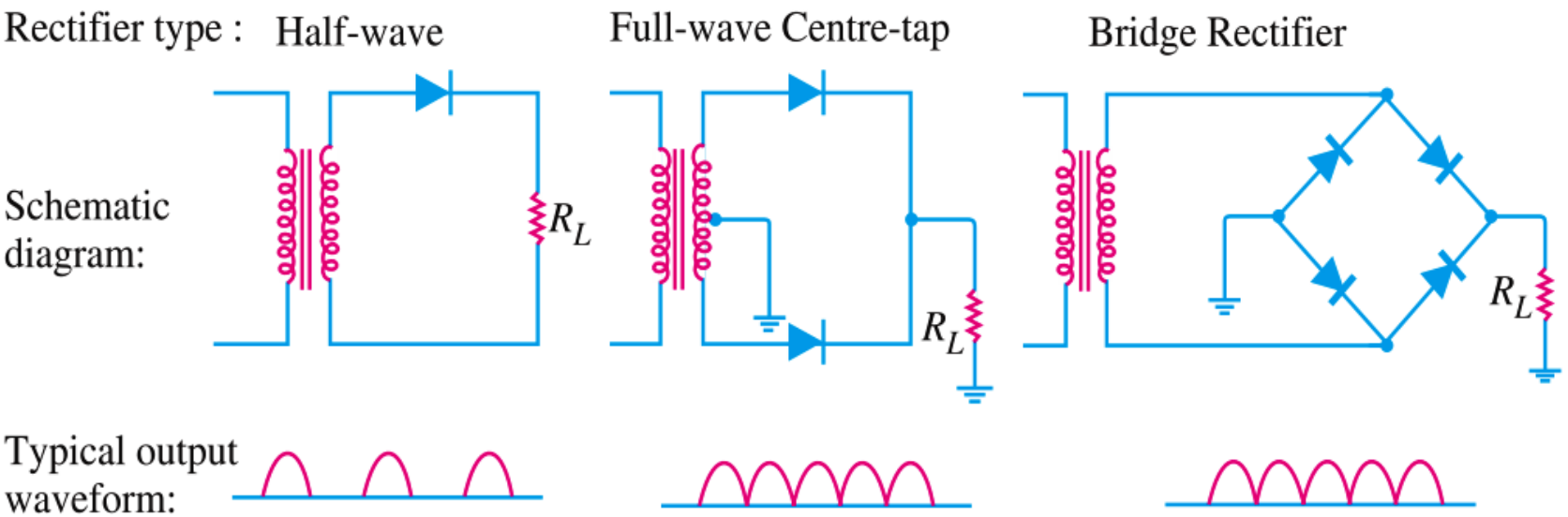
Smoothing voltage





Resultant Output Waveform

Comparison ???


Rectifier type :
Half-wave
Full-wave Centre-tap
Bridge Rectifier
Schematic diagram:
R_L
R_L
R_L
Typical output waveform:

Electrical Drawing

High voltage ???

Low Voltage - upto 1000V

Medium Voltage - 1000V to 35kV

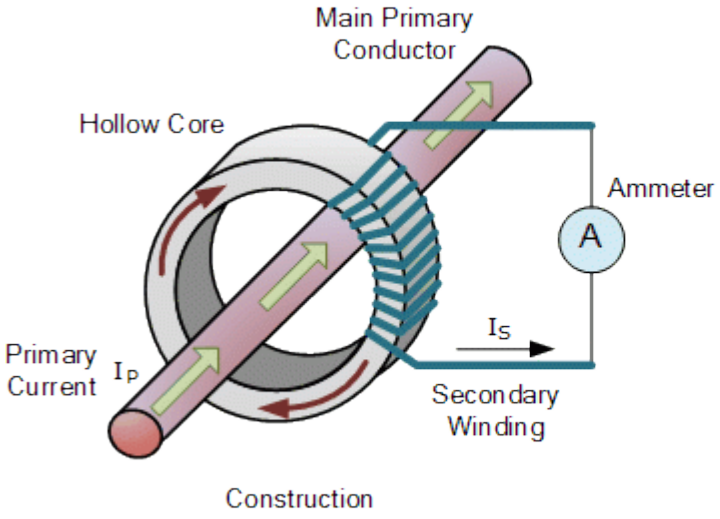
High Voltage - 35kV to 230 kV

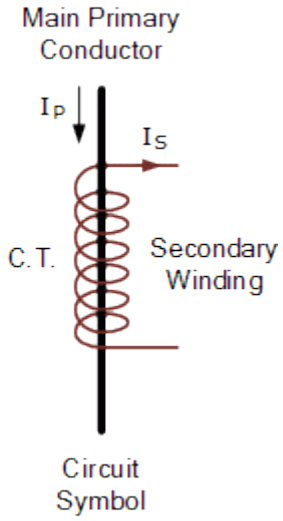
Extra High Voltage - above 230 kV.

In some situations, the term Ultra High Voltage is used to denote voltages above 800 kV.

Electrical Drawing

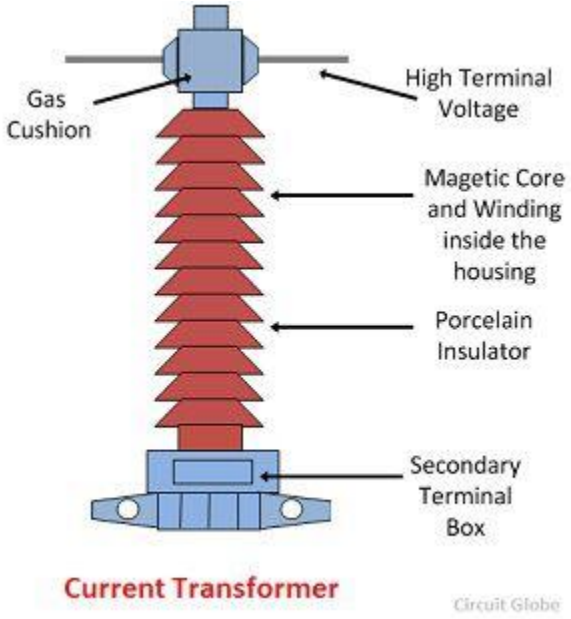
Bar-type current transformer

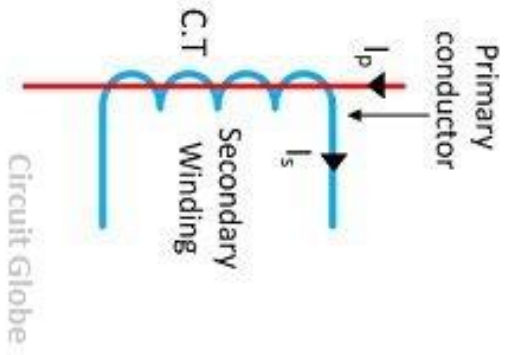




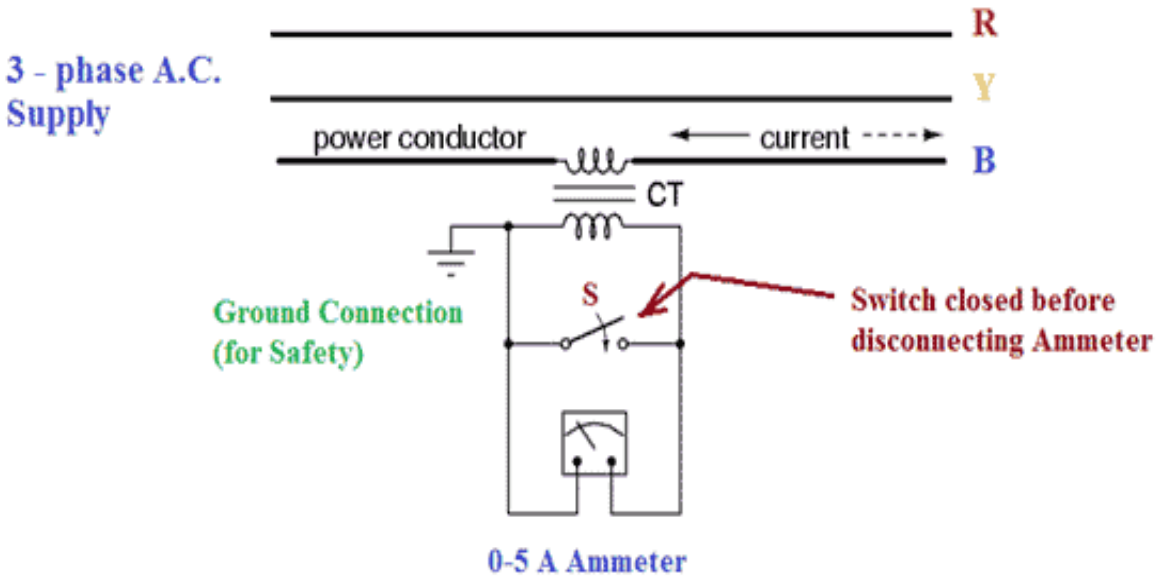
Series current transformer

- The primary and the secondary windings are insulated from the cores and each other.
- The primary winding is a single turn winding (also called a bar primary) and carries the full load current.
- The secondary winding of the transformers has a large number of turns.



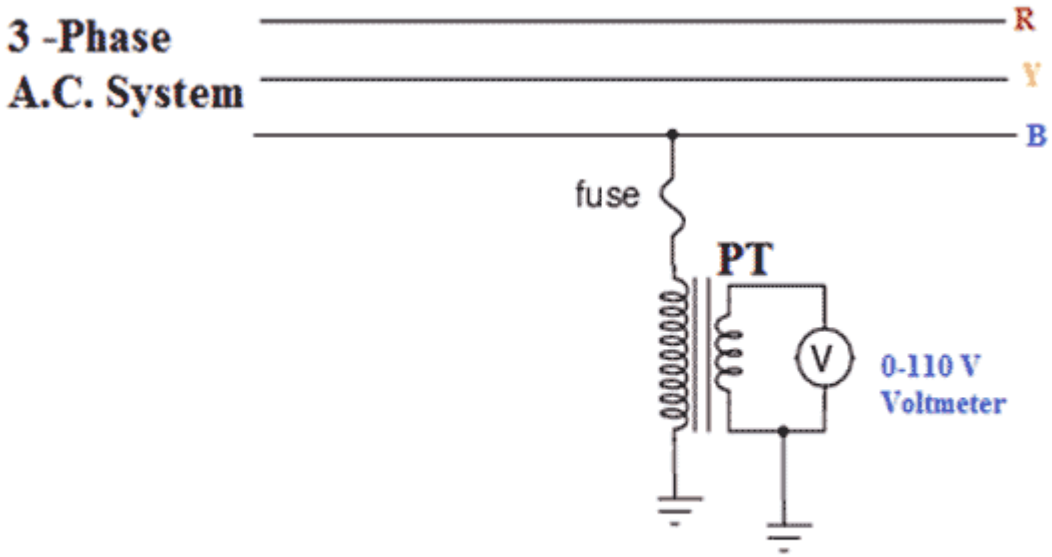


Electrical Drawing



Current Transformer (C.T.)

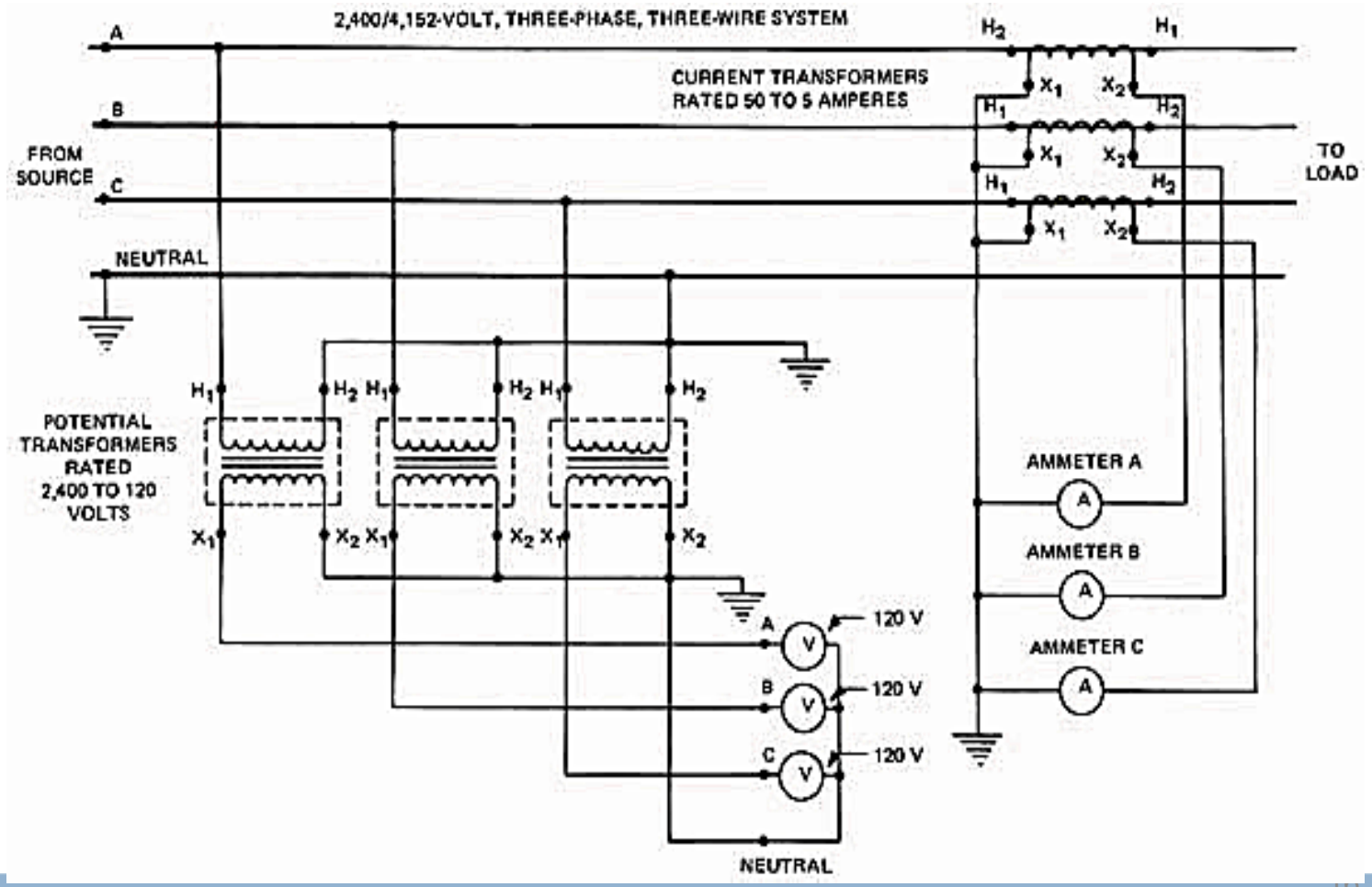
Protentional transformer



Potential Transformer (P.T.)

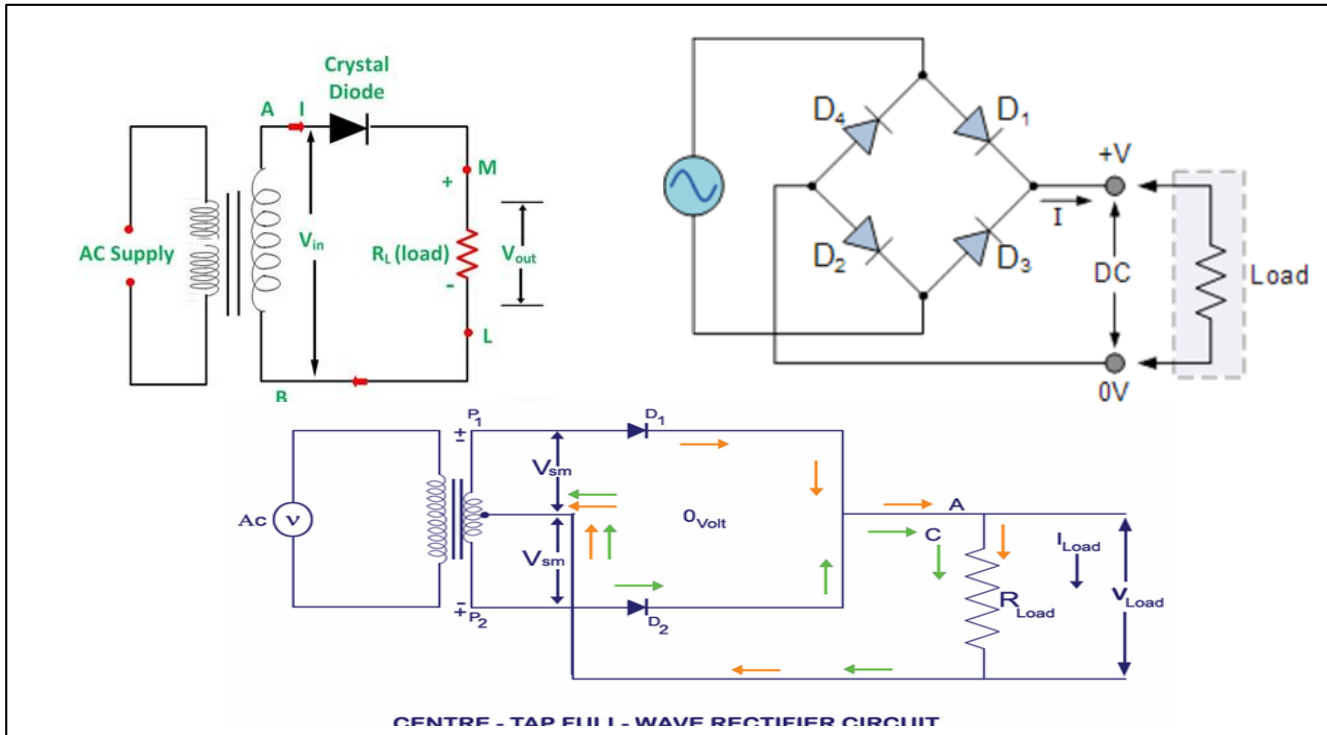
Electrical Drawing

General circuit



Electrical Drawing

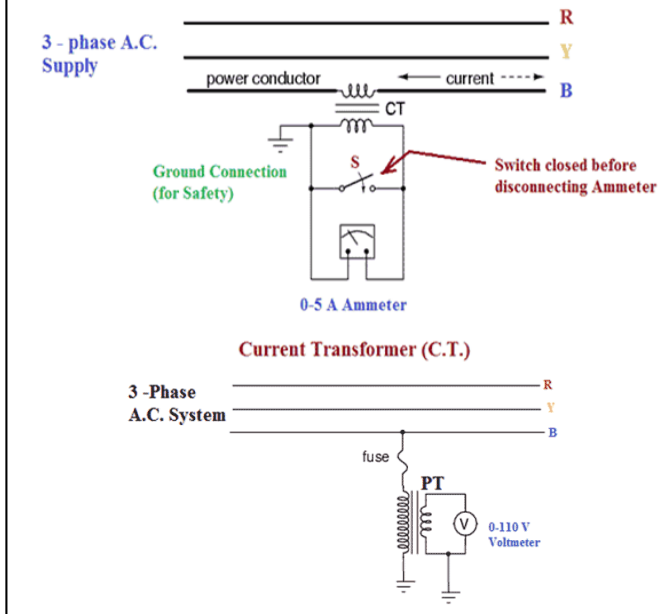
Drawing 1

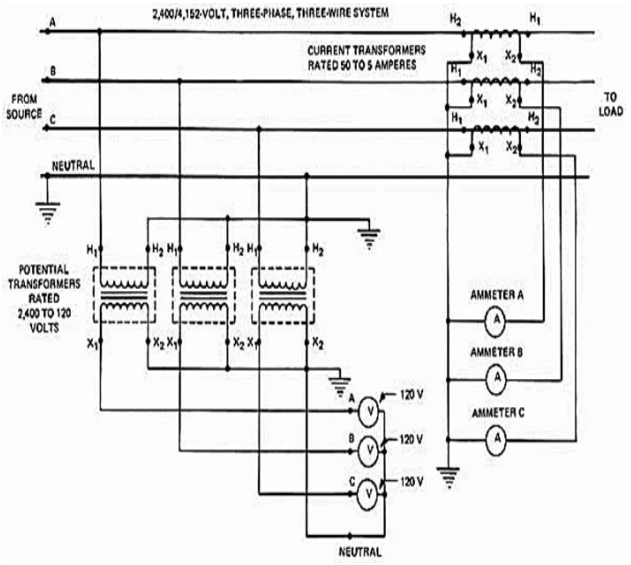


South Valley University Faculty of Engineering Department of Electrical Engineering	DRN BY:		MAT	CL. NO	SH NO	Rectifier cir.
	Scale	Dims :mm	WT	B. NO	Date :	

Electrical Drawing

Drawing 2



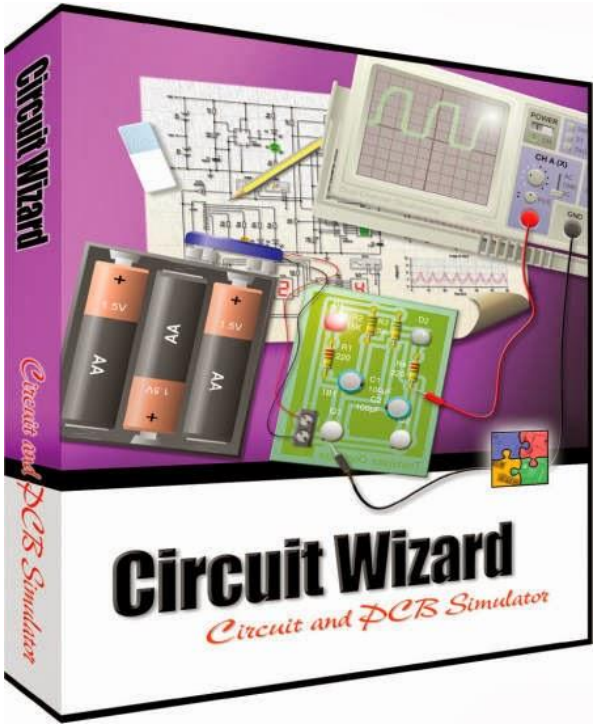


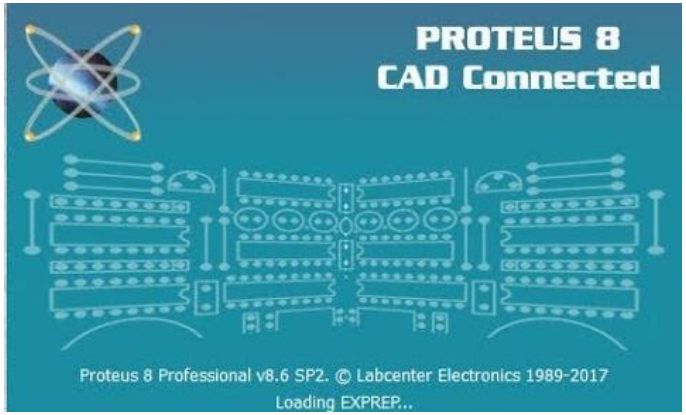
South Valley University Faculty of Engineering Department of Electrical Engineering	DRN BY:		MAT	CL. NO	SH NO	High voltage mea.
	Scale	Dims :mm	WT	B. NO	Date :	

Electrical Drawing

Task

- Comparison among rectifier circuits and their simulation





Feedback

Email: hossam.herzallah7@gmail.com

Email subject: Transformer regulation Feedback

Reference

- https://circuitglobe.com/current-transformer-ct.html
- https://circuitglobe.com/potential-transformer-pt.html
- **https://www.electrical4u.com/**


Thanks