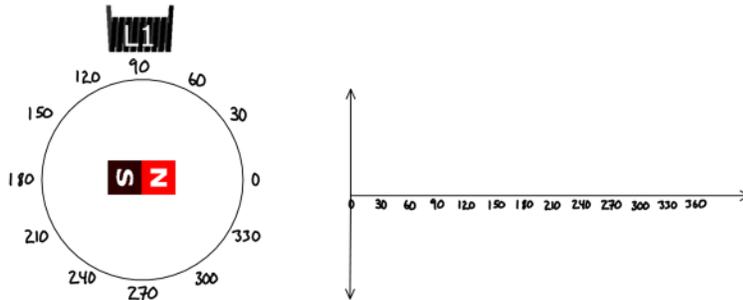


Introduction to 3 Phase AC (46:30)

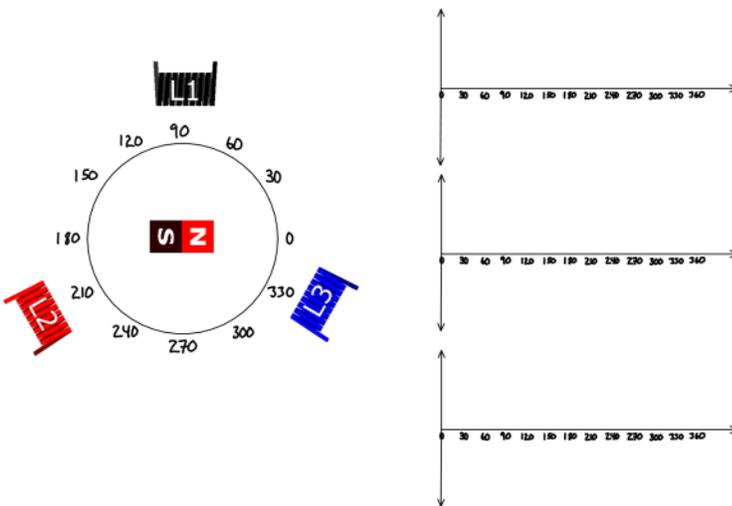
Describe 3 phase AC in general terms.

Discuss the advantages of 3 phase AC over single phase AC

Explain the generation process of single phase AC using this diagram.



Explain the generation process of 3 phase AC using this diagram.



Given 3 phase AC with the following properties express the 3 voltage waveforms as phasor equivalents assuming L1 to be the reference. Illustrate the phasors on a phasor diagram.

$$V_{PEAK} = 311V$$

$$T = 20ms$$

Differentiate between the terms line and phase.

Draw a 4 wire Y configuration of 220V sources.

Draw a 3 wire Y configuration of 220V sources.

Draw a delta configuration of 220V sources.

Identify the fundamental difference between 4 wire Y and delta configured generators employing identical sources.

Identify the line to line differentials for a 3 phase AC system with 220V line to neutral values. Illustrate the line to neutral voltages and the line to line voltages on a time line and phasor diagram assuming L1 with respect to neutral is the reference.

Illustrate the line to neutral voltages and the line to line voltages on a phasor diagram assuming L1 with respect to L2 is the reference.

Identify the short cut relationship of line to line voltages and line to neutral voltages.

Given a 4 wire y configuration consisting of 3 windings each with a 120V differentials phase shifted from each other by a relative 120° , determine the line to neutral differentials and line to line differentials assuming L1 to neutral is the reference. Determine the same phasor equivalents when L1-L2 is assumed to be the reference.

Given a 4 wire y configuration consisting of 3 windings each with a 277V differentials phase shifted from each other by a relative 120° , determine the line to neutral differentials and line to line differentials assuming L1 to neutral is the reference. Determine the same phasor equivalents when L1-L2 is assumed to be the reference.

Given a delta configuration consisting of 3 windings each with a 277V differentials phase shifted from each other by a relative 120° , determine the line to line differentials assuming L1-L2 is the reference.

Given a 3 phase AC system exhibiting 575V line to line differentials phase shifted from each other by a relative 120° , determine the phase voltages if the system was delta configured. Determine the phase voltages for the same system if it was a 3 wire Y configuration.