35kV bus line voltage and phase voltage

Article Overview

For a 35 kV three-phase bus, the line-to-line voltage is 35 kV, and the corresponding phase (line-to-neutral) voltage is approximately 20.2 kV.

Voltage Relationship in a Three-Phase System

In a three-phase system, the line-to-line voltage (V_L) and line-to-neutral voltage (V_Ph) are related by the square root of three: V_Ph = V_L / √3 For a 35 kV bus:

• Line-to-line voltage (V_L) = 35 kV
• Phase voltage (V_Ph) = 35 kV / √3 ≈ 20.2 kV This means each phase of the bus has a voltage of about 20.2 kV relative to neutral or ground, while the voltage between any two phases is 35 kV .

Practical Considerations

• Equipment Ratings: Transformers, switchgear, and bushings are rated according to the line-to-line voltage of the bus, which in this case is 35 kV .
• Fault Conditions: During single-phase-to-ground faults, the voltage of the faulted phase drops, while the other two phase-to-ground voltages can rise to √3 times the normal phase voltage, but the line-to-line voltage remains largely unchanged .
• Distribution Standards: Utilities often refer to the voltage class (35 kV) rather than the exact operating voltage. The actual line-to-line voltage may vary slightly depending on system design, load, and regulation .

Summary...

Article Content

Line Voltage and Phase Voltage: Difference, Relation & Star

In three-phase electrical systems, two types of voltages often create confusion: line voltage and phase voltage. Understanding them

Primary Distribution Voltage Levels

In this article, unless otherwise specified, voltages are given as line-to-line voltages; this follows normal industry practice, but it is

IEC Phase-to-Phase Clearance Standards | PDF | Insulator ...

Table 1 covers voltages from 1kV to 245kV and lists nominal system voltages, maximum equipment voltages, insulation levels, and

Distribution Voltage Level

For the secondary three-phase line voltages, (208, 480, or 600 V) for North American systems and (380, 400, or 416 V) for the

Line Voltage to Phase Voltage Line Current to Phase ...

At the same time the line current or phase current above 25Amps, Current transformer is used to reduce the current level from high

IEC 60038

Table 4 defines those for three-phase AC systems where voltage is to be within the range 35kV to 230kV. Table 5 defines those for

Line voltage and phase voltage

In this article, we are going to learn about line voltage and phase voltage, the line voltage and phase voltage formula, what is voltage

SUBSTATION ELECTRICAL BUS AND PARTS CLEARANCES

The clearances given in Table 17-4 are considered adequate for both line-to-ground and phase-to-phase values for the voltage

Electric Design of 35kV Substation | IEEE Conference Publication

Abstract: This paper made a design about a 35/10kV step-down substation according to the load of a town. The main technical focus

Functional Specification for 15 kV, 25 kV, or 35 kV Underground ...

When specified, an internal single-phase potential transformer (liquid-insulated designs only) shall be provided that shall be

Three-Phase Systems and Their Applications

Basics of Three-phase Systems Three-phase electrical systems are the foundation for modern energy generation, transmission, and

Line Voltage vs Phase Voltage: Key Differences & Formula Explained

Discover the relation between line voltage and phase voltage. Master core concepts easily with expert notes from Vedantu-start

Line Voltage and Phase Voltage

Line voltage and Phase Voltage in a Star connection Three phase voltage or star connection generally consists of voltage flowing

35kV Substation Electrical Design

The document then discusses the electrical main wiring designs for the substation, including selecting the main transformer capacity

Bus Voltage

The system DC bus voltage is mainly determined by the propulsion motor voltage, desired generator voltage, load considerations,

SUBSTATION DESIGN CRITERIA DOCUMENT

The 110'' x 144'' substation yard will consist of two (2) incoming 34.5kV collector line feeders, each with circuit breaker protection

Line Voltage vs. Phase Voltage: A Comprehensive Guide

The voltage between two lines is not simply the arithmetic difference between their respective phase voltages. Because the phase

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