

Calculation of 35KV bus voltage

Article Overview

A 35 kV bus is typically rated at 35 kV line-to-line, with current and busbar sizing determined by transformer ratings, load, and short-circuit requirements.

Rated Voltage and Current

For a 35 kV bus, the line-to-line voltage is 35 kV. To calculate the rated current for a connected transformer or load, use the formula:

$$I = \frac{S}{\sqrt{3} \cdot V}$$

where S is the apparent power in VA (or MVA) and V is the line-to-line voltage. For example, a 75 MVA transformer at 34.5 kV has a rated current:

$$I = \frac{75 \text{ MVA}}{\sqrt{3} \cdot 34.5 \text{ kV}} \approx 1.255 \text{ kA}$$

If multiple parallel cables are used per phase, the current per cable is divided accordingly. For 6 cables per phase: $1.255 \text{ kA} / 6 \approx 209 \text{ A}$ per cable ().

Busbar Sizing

Busbars must be sized to carry the rated current continuously and withstand short-circuit currents. Aluminum or copper busbars are selected based on:

- Current carrying capacity for the expected load
- Short-time withstand for fault conditions
- Temperature rise limits (e.g., 50°C above ambient) () For example, a 4" EH IPS aluminum tube may carry up to 3590 A with proper spacing and support, suitable for a 35 kV bus ()....

Article Content

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Substation - A set of equipment reducing the high voltage of electrical power transmission to that suitable for supply to

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SUBSTATION ELECTRICAL BUS AND PARTS CLEARANCES

The results are shown in Table 17-5 and include minimum line to- ground clearances for EHV system voltage ratings of 345, 500,

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Enwei Electric provides 35 kV switchgear with vacuum interrupters, robust bus systems, arc

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Electric Design of 35kV Substation

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Bus Bar Calculator

Calculate current capacity, voltage drop, and temperature rise for electrical bus bars. This calculator helps electrical engineers, panel

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POWER SYSTEM ANALYSIS (19A02602)

Basic calculation required to determine the characteristics of this state is called as Load flow Power flow studies - To determine the

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35k Dist Standards 35KV manual all

For all metering installations (secondary, 15kV, 25kV, & 35kV), refer to Section AOJ in the APCO Company Specific Section of the

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Power Flow: Bus Equation Basics

Power Flow: Bus Equation Basics This is a subtopic of the Power Flow Solution Theory Help. Each bus in the power system model

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Calculation of Phase Voltage of 35kV Busbar

Calculate current capacity, voltage drop, and temperature rise for electrical bus bars. This calculator helps electrical engineers, panel

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Busbar Size Calculation Formula | Aluminium and Copper Examples

8. Altitude of Busbar Installation Derating Factor (K8) Total Derating Factor Busbar Size Calculation Formula

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Design and electrical calculations for 110(220)/35/10 kV power ...

The main function of these substations is to step down the voltage level to three-phase voltage, which is used in

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Current Rating, Temperature Rise, IEC 61439

Busbar sizing calculator for copper and aluminum per IEC 61439. Current rating, temperature rise, short-circuit forces,

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Power Substation Design Calculations – A Checklist of

What does it take to design a masterpiece of a substation? Quite a bit, honestly. In this

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Busbar Size Calculation Formula | Aluminium and Copper Examples

How to Calculate Busbar Size On this occasion, we will talk about busbar size calculation to prevent any overheat

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Electrical Primary Research and Design of 35 kV Substation

Electrical Primary Research and Design of 35 kV Substation Yuan Lijuan Sichuan Liangshan Power Supply Company,

Nov 07, 2025

SUBSTATION DESIGN CRITERIA DOCUMENT

The Primary station service will originate from the 34.5kV bus and feed a single phase 25kVA transformer. A 240/120V grounded

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Bus Design-Calculation final(006)

6.3 kV/cm = 10.44 kV/cm Allowable voltage gradient at the surface of the conductor is 20kV/cm.

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Calculation of VFD Electrical Parameters

This calculator provides the calculation of VFD DC bus voltage, synchronous speed, induced voltage, and AC field

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5.0 CHECK FOR VOLTAGE GRADIENT:- 5.1 Average voltage gradient at the surface of the bundled conductors $E_a =$

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Transmission Cost Estimation Guide

This Transmission Cost Estimation Guide contains costs both for alternating current (AC) transmission lines and for

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35kV Cable Bus Application

Anyone have any experience with using cable bus for 35kV applications with short distances? I'm looking at a

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Transmission Line Voltage Calculation | True Geometry's Blog

Transmission Line Voltage Calculation 05 Oct 2024 Tags: Calculations Explanation Concepts dc bus voltage calculator

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Steady-State Power System Security Analysis with ...

All buses in the power system are assigned a Nominal Voltage. Normally this corresponds to the physical voltage rating of devices

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Design of 35kV Box Substation

It is a high-voltage switchgear, distribution transformer and low-voltage power distribution device arranged in three different

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Electric Design of 35kV Substation

Engineers are utilizing calculation software like RastrWin3 to design and analyze these substations. This software

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ECEN 615_Lecture 3

Two Bus Solved Values • Once the voltage angle and magnitude at bus 2 are known we can calculate all the other system values,

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35kV Substation Electrical Design

It also covers short-circuit current calculation, selection of electrical equipment, and lightning protection and grounding design. The

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Electric Design of 35kV Substation

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

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Simulation calculation of electric field protection for live-working on ...

The tower structure and voltage level of 35kV line are between distribution line and transmission line, which makes it difficult for live

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SubstationDesign_2014-2015_Final_DP

Corona forms when the voltage gradient at the surface of the conductor exceeds the dielectric strength of the

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Optimum DC Bus Voltage Analysis and Calculation Method for

In this paper, an online method to calculate the optimum dc bus voltage for motors and inverters with variable dc bus

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Electric Design of 35kV Substation

Electric Design of 35kV Substation Abstract: This paper made a design about a 35/10kV step-down substation according to the load

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