

How to operate the 10kV bus switching PT



Overview

Some customers connect the Protection & Metering to line V.T. under normal condition and under line V.T.

Key Takeaways

Operating a 10kV bus switching PT requires following strict safety procedures, understanding the PT's role in voltage measurement, and coordinating with circuit breakers and bus switching mechanisms. Safety Precautions

Before any operation, ensure the main power supply is turned off to prevent electrical shock or burns. Only qualified personnel trained in medium-voltage systems should operate the PT and associated switchgear. Always follow the manufacturer's safety alerts and warnings, as improper handling can result in severe injury or equipment damage.

Understanding the PT Function

A Potential Transformer (PT) steps down the 10kV bus voltage to a safe, standardized secondary voltage (typically 100V or 110V) for monitoring, protection relays, and control systems. The PT provides accurate voltage signals for:

- Power monitoring and metering
- Directional overcurrent protection



- Distance relaying and automation systems Ensure the PT has sufficient burden capacity to drive all connected meters and relays without voltage drop errors .

Operating Procedure

- Verify System Status: Confirm the bus section is de-energized or that the PT is in a safe test mode. Check that all circuit breakers and switches are in the correct positions .

- Manual Operation: Use the charging handle and manual “Open”/“Close” buttons on the PT trip unit to operate the circuit breaker if needed .

- Automatic Switching: In systems with automatic bus transfer, the PT works with sectional switches and control logic to detect voltage loss and initiate spare power switching according to preset priorities . The sequence typically involves:

- Detecting a voltage-loss bus section
- Tripping the main supply low-voltage switch after a delay
- Activating the sectional switch to restore power automatically
- Returning to the initial state if switching fails

- Testing: Conduct tests only in disconnected or test positions, never under full load, to avoid unnecessary tripping or hazards .

- Monitoring: Continuously monitor PT outputs and bus voltages to ensure proper operation and detect faults early .

Maintenance and Considerations

- Replace or service the control module and auxiliary power module according to the manufacturer's instructions .

- Ensure proper integration with current transformers (CTs) and protection relays for accurate fault detection .

- Follow all installation, commissioning, and maintenance guidelines to maintain system reliability and safety . By adhering to these procedures, the 10kV bus switching PT can be safely operated, ensuring accurate voltage measurement, reliable protection, and effective automatic bus switching.

Article Content

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MV metal-enclosed switchgear This technical article will shed some light on the standard design of medium voltage

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Component Selection Guide for 10kV Distribution System

A comprehensive guide to selecting components for 10kV substations, including circuit breakers, fuses, surge

Different Bus-Bar Schemes in Electrical Substations

So let's start with different bus-bar schemes or systems in an electrical substation.

Bus Switching Configurations In Air Insulated Substations (AIS)

Maintenance of the bus would require the outage of the total system, use of standby generation, or switching to adjacent station, if

Chapter III

The level of reliability for interconnected generation should be consistent with the generation's anticipated availability and frequency

220kV Substation Equipment Bus Scheme & Operation ...

220kV Substation Equipment Bus Scheme & Operation Procedure Testing & Maintenance - Download as a PDF, PPTX or view

Paper Title (use style: paper title)

Line Figure 1. Substation Diagram 10kV PT 1# substation transformer At 3 pm on June 21st, the single phase to ground fault occurs

Slide 1

The computer will monitor the voltage at the substation, and switch the individual reactors and capacitors in and out of service as

What Is Switching Station? | Working And Layout

What is a switching station? A switching station is a substation that does not contain power transformers and therefore

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Line Figure 1. Substation Diagram 10kV PT 1# substation transformer At 3 pm on June 21st, the single phase to ground fault occurs

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The Ground Switch shall be of 72.5 kV Class, withstand 350 kV BIL in the open position and have a withstand rating of 40 kA (Short

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