Introduction

The ACB Control Panel Training System is a specialized educational setup designed to provide hands-on training in the operation, control, and protection mechanisms of Air Circuit Breakers (ACBs).

This system enables students and trainees to understand real-world switchgear operations by simulating practical fault conditions and observing breaker responses in a safe and controlled environment.

Training Objectives

- To study the construction and working of Air Circuit Breakers
- To understand breaker control circuits and operation logic
- To demonstrate closing, tripping, and reset mechanisms
- To analyze interlocking schemes used in protection systems
- To observe breaker behavior under simulated fault conditions
- To measure and evaluate fault current interruption performance

System Description

The training system consists of a well-structured control panel incorporating an ACB unit along with associated control and protection circuitry. The panel is equipped with visual indicators, control switches, and measuring instruments to facilitate effective learning and experimentation.

A mimic diagram is provided on the panel to simplify understanding of circuit connections and operational flow.

Key Features

- Designed specifically for educational and training purposes

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.

- Rugged and ergonomically designed panel
- Clear schematic/mimic representation for easy learning
- Built-in fault simulation facility
- Real-time monitoring of breaker status
- Safe and user-friendly operation
- Modular design for flexibility and maintenance

System Components

Air Circuit Breaker (ACB) Module

- Electrically/Manually operated breaker unit
- Thermal-Magnetic or Electronic trip mechanism
- Auxiliary contacts for interlocking demonstration

Control & Indication Section

- ON / OFF Push Buttons
- Trip Push Button
- Indicator Lamps for status (ON / OFF / TRIP)
- Selector switches for operational modes
- Interlocking arrangement for safety demonstration

Fault Simulation Module

- Provision to simulate overload conditions
- Provision to simulate short circuit conditions
- Controlled and safe fault injection mechanism

Measurement Section

- AC Voltmeter
- AC Ammeter
- Optional digital metering for accurate readings

Technical Specifications

Input Supply

- Voltage : 415 V AC, 3 Phase, 50 Hz
- Control Supply : 230 V AC / 24 V DC

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Experiments / Learning Activities

- Study of ACB construction and working principle
- Operation of breaker under normal conditions
- Tripping characteristics under overload conditions
- Response under short circuit simulation
- Study of interlocking mechanisms
- Measurement of electrical parameters during operation

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