

Power & Controls

WL Low Voltage Switchgear Maintenance

General Information

Course Code: SCT-EMWLBM1A

Length: 2 Days

Audience

For personnel involved in installation, operation, maintenance or testing of Siemens Type WL low voltage switchgear with Electronic Trip Units (ETU).

Profile

1.4 CEUs (Continuing Education Credits)

Proper methods for installing the equipment to assure satisfactory service and typical operations such as racking, charging, closing and tripping are explained as well as how to respond should the breaker trip. Typical maintenance and parts replacement are covered.

Features and benefits of the electronic trip units and expansion modules are explained and methods for setting the trip units using front panel controls or by connection to a PC are covered.

Objectives

Upon completion of this course, the student shall be able to:

- Identify Siemens WL low voltage switchgear
- Understand the installation requirements for satisfactory service
- Properly rack, charge, close and trip the WL circuit breaker
- Determine the appropriate response to a breaker trip condition
- Perform typical maintenance and parts replacement
- Read and adjust settings on the Electronic Trip Unit using front panel or electronic means
- Recognize the safety features of the lockouts provided and how to use them
- Replace an electronic trip unit, charging motor, closing coil or trip coil
- Perform field testing of the circuit breaker
- Interpret Siemens drawings related to the WL switchgear line

Topics

1. Introduction to Type WL Low Voltage Switchgear
 - a. Theory of Current Interruption in Air Circuit Breakers
 - b. Mode of Operation, Special Features
2. Cubicle Structure and Components
 - a. Racking Mechanism

- b. Secondary Disconnect
 - c. Mechanism Operated Cell Switch
 - d. Truck Operated Cell Switch
 - e. Voltage/Control Power Transformers
 - f. Shutters
 - g. Ground Bus
 - h. Current Transformers
3. Circuit Breaker Components
 - a. Closing Springs
 - b. Opening Springs
 - c. Charging Motor
 - d. Close Coil
 - e. Trip Coil
 - f. Locking Device
 - g. Padlocking Options
 - h. Motor Cutoff Switches
4. Cubicle and Circuit Breaker as a Unit
 - a. Inserting a Breaker
 - b. Racking the Breaker
 - c. Mechanical Interlocks
 - d. Lifting the Breaker
5. ETU Protective Device
 - a. Functions and Capabilities
 - b. Rating Plug
 - c. Setting the Device
 - d. Interpreting Time Current Curve
 - e. Alphanumeric Display
 - f. Graphical Display
 - g. Communication
 - h. Zone Interlocking
 - i. Breaker Data Adapter (BDA)
 - j. Parameter Sets
6. Maintenance
 - a. Safety Precautions
 - b. Rack-Out, Lock-Out, Tag-Out
 - c. Cleaning
 - d. Lubrication
 - e. Insulation Resistance Test
 - f. Contact Resistance Test
 - g. Portable Test Kit
7. Parts Replacement
 - a. Arc Chutes
 - b. Close and Trip Coils
 - c. Spring Charging Motor
 - d. ETU Trip Unit