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Substation Transformer Interlocking









Application Requirements:

Transformers within substations are usually housed within its own enclosure or in a separate room. However, access into this rom should not be achievable until the connections to the transform have been isolated and earthed which would ensure that the transformer has entered a safe state. This example is only part of a system as complete substation interlocking systems are typically far more complex.

System Schematic:

To gain entry into the transformer room, an operator must follow the entry procedure in order to unlock the transformer room door.

- 1. Three disconnector switches must be turned off and locked in place by turning and removing a rapped keys from each transformer isolator.
- 2. These three keys must then be inserted into the first key exchange in order to release the two trapped keys to operate the earthing switches.
- 3. The two released keys can be inserted into the empty bolt lock mounted to each transformers circuit breaker earthing switches. Turning the each key will retract the bolts, enabling the earthing switches to be switched on.
- 4. Once the earthing switches have been switched to the 'ON' position, the two keys from the bottom bolt locks can now be turned and removed which also fires the bolt and locks the earthing switches in the 'ON' position.
- 5. The two keys released from the earthing switches can now be inserted into another key exchange in order to remove two additional keys. One of these keys can be used to continue the isolation process for the remainder of the substation, whereas the access key can be used to unlock the door to the transformer room.
- 6. Access into the transformer room cannot be achieved until the access key can be from the second key exchange has been inserted and trapped key in the mechanical door lock before the door locks actuator can be retracted and the door can be opened.
- 7. Power to the transformer will not restart until all keys used in the entry procedure have been returned to their original positions.















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