

Clause 4.3.5.2 of Technical specifications.

In addition to the indication requirements in this clause, please add the following indication lamps in the LV compartment front panel for outgoing feeders, Bus section and incomers.

- (I) Auto trip indication: Orange lamp
- (II) Spring charged indication: Blue lamp
- (III) CB in service indication: Red lamp
- (IV) CB in test indication: Green lamp
- (V) Earth switch ON indication: Red lamp
- (VI) Earth switch OFF indication: Green lamp

Clause 4.3.8.1 of Technical specifications on outgoing feeder protection relay, indication and control IED requirement.

The feeder protection relay front Face LED Indications shall include the following.

- 50+50N Operated.
- 51+51N Operated.
- TCS 1/2 Unhealthy.
- Load shedding trip
- 50G Operated
- 86 Operated.
- Auto reclose in progress
- Auto reclose unsuccessful
- Cable compartment arc sensor operated.
- Circuit Breaker compartment arc sensor operated
- Bus bar compartment arc sensor operated.

The incomer panel protection relay front Face LED Indications shall include the following.

- 50+50N Operated.
- 67+67N Operated.
- TCS 1/2 Unhealthy.
- Fuse Fail

27/59 Operated

86 Operated.

Cable compartment arc sensor operated.

Circuit Breaker compartment arc sensor operated

Bus bar compartment arc sensor operated.

The Bus section panel protection relay front Face LED Indications shall include the following.

50+50N Operated.

51+51N Operated.

TCS 1/2 Unhealthy.

Fuse Fail

86 Operated.

Cable compartment arc sensor operated.

Breaker/Bus bar compartment arc sensor operated.

Arc Sensor operated in OG/BPT/IC.

Clause 4.3.8.4 Bus PT Panel.

These are the additional requirements of this clause of the specifications.

The panel shall have a voltage relay configured to perform the following functions:

Under voltage protection 27

Overvoltage protection 59

Over/under frequency 81

The voltage relay shall have an integrated optical card with two inputs one from the PT compartment and the other from the bus bar compartment.

The voltage relay shall have the following outputs.

Programmed output for PT/Bus bar compartment arc sensor operated, wired to trip both incomer and Bus section Breakers.

Programmed output for stage 1 under frequency load shedding, wired through withdrawable links to trip all the outgoing feeders in the bus bar section.

Programmed output for stage 2 under frequency load shedding, wired through withdrawable links to trip all the outgoing feeders in the bus bar section.

Programmed output for stage 3 under frequency load shedding, wired through withdrawable links to trip all the outgoing feeders in the bus bar section.

The voltage relay shall have the following front face LED indications

27 operated

59 operated

81 operated

PT Secondary MCB trip

PT Compartment arc sensor operated

Bus bar compartment arc sensor operated

Load shedding stage 1

Load shedding stage 2

Load shedding stage 3

The Bus VT/PT Panel shall have provision for bus bar earth switch.

There shall be lamp for status indication of the bus bar earth switch

Red lamp: Earth switch closed

Green lamp: Earth switch Open

The section bus bar earth switch shall only be closed with the incomer and bus section in test position.

Clause 4.4.2 of technical specifications (Arc flash protection)

4.4.2.9 The arc flash protection function operating from the circuit breaker and bus bar compartments shall trip the incoming panel circuit breaker of the affected section and the bus section circuit breaker.

The arc flash protection function operating from the incoming panel cable compartment shall trip the incoming panel circuit breaker and shall have provision for the wiring of external trip to the upstream circuit breaker.

4.4.2.3 The arc flash detection system shall be an optical card integrated in the panel relays and armed with three light inputs from lenses mounted in the cable compartment, circuit breaker compartment and bus bar compartment.