B. **Locked Rotor** – To trip the motor within 1 to 5 Sec. when the running current exceeds the stalled rotor trip level of 1.5 to 5.0 x FLC.

C. **Phase unbalance** – Should there be a phase current unbalance of greater than 15% lasting for 5 seconds an alarm shall be generated. If the condition prolonged for 10 seconds or more a trip shall occurs.

D. **Ground fault** – The ground fault shall be measured as a percentage of primary range of current transformer. The setting range for the ground current shall be 300mA to 5 Amps current. An adjustable delay time of 0-30 seconds shall allow preventing nuisance alarm from momentary surges. It should be possible to make the alarm setting below the trip level to indicate early warning insulation breakdown.

E. **Thermistor/Over temperature** – EMPR shall be capable of accepting PTC and NTC sensors. Thermistor level shall be selectable for both alarm and trip conditions with an adjustable time delay of 0-5 seconds.

F. **Under current** – 10 – 100% of motor FLC with a time delay of 0-30 seconds.

G. Earth leakage 30mA to 2A.

1.3.16.4 Thermal Overload Relay

A. Thermal overload relay where specified shall be of Bi-metallic inverse time-lag type, which shall be used with a contactor in the starter circuit enabling switching device to open both control and power circuit (fully isolating the power to the motor terminal box) when the current in the relay exceeds a predetermined value.

B. The thermal overload relay shall fully comply with the requirement of BS EN 60255-8

C. The thermal overload relay shall be simple and robust suitable for direct contactor mounting or if to be mounted separately shall be used with manufacturer supplied links and associated attachment.

D. The thermal overload relay shall be designed to include ambient temperature compensation feature from – 20 ^{o}C to + 65 ^{o}C eliminating the need of any calibration in the field during operation.

E. The thermal overload relay shall provide the following protections:-

- Over-current/Overload
- Single phasing/Phase failure