EFZ

EARTH FAULT RELAY

- Recognition of changes in phase sequence
- Recognition of phase loss
- Recognition of asymmetry in voltage of three phases
- Fast disconnection in case of fault
- Capability of selecting energization time after fault correction
- Having display signals for different faults and normal status

↘ Principles of Operation

This relay is designed for protection against earth connection. Basically, when network current is in balance, resultant of currents passing through load wires is zero. For example, , all the current which reaches to consumer from phase just returns from null in a single-phase two-wire network. It is also the same in three-phase three-wire or four-wire networks. Anyhow, traveling current in wire would be fixed with symmetric or asymmetric loads. But when earth connection happens, some of traveling current is grounded while not returning through the network wires. Considering that all the wires of consumer should pass through the transformator core associated with the device (core balance current transformator), this imbalance would be revealed and relay commands the disconnection.

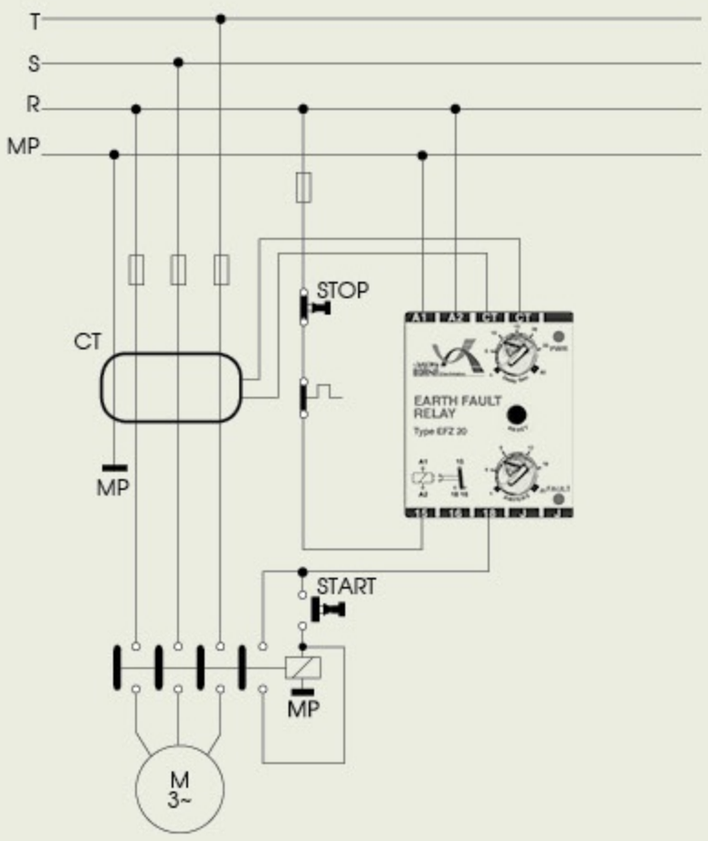
When supply voltage and output of CT associated with the device are connected to terminals A1, A2 and CT and leaking current is in allowed range, the device internal relay opens (internal contact of terminal 15 to 18 is established) and PWR and FAULT signals would be on and off respectively.

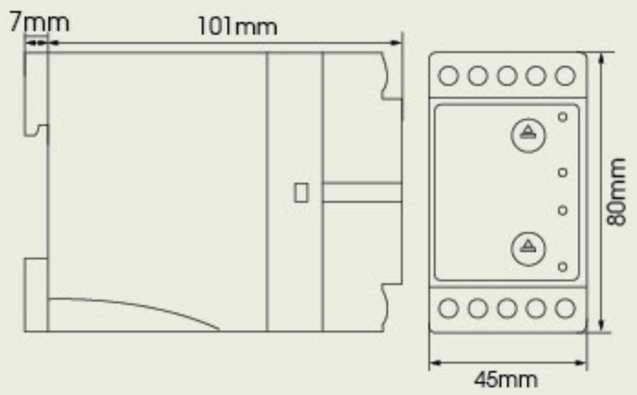
When earth leaking current is beyond that adjusted by AMPERS potentiometer handle, device starts timing. Then, at the end of time adjusted by DELAY potentiometer handle, FAULT signal gets ON and internal relay closes (internal contact of terminal 15 to 18 is made).

If earth current leakage decreases into the allowed range during the above adjusted time, relay remains unchanged.

After FAULT signal gets ON, if earth current leakage is under the allowed limit, FAULT signal gets OFF and device internal relay opens (internal contact of terminal 15 to 18 is established).

If J terminals are separated from each other, device will start automatically after every fault occurrence and its correction. If J terminals are connected together, device should be restarted by RESTET button every time after fault occurrence and its correction.





↘ 2 Signals

- PWR: Input supply display
- FAULT: Fault condition display

↘ Installation and Start-Up

Supply voltage is connected to terminals A1 and A2.

All the consumer's wires should pass through the device associated CT.

CT output should be connected to CT terminals of earth fault relay.

Terminals 15, 16 and 18 are device internal relay contact points which have to be put in series with control circuit if required for example, to activate an alarm or to disconnect the main contactor's command.

The limit from which current leakage should not exceed is set by adjustment potentiometer handle (AMPERS).

The delay time duration in device internal relay closing is set by delay time adjustment potentiometer handle (DELAY). This is adjustable in range of 1 to 30 seconds.

↘ Technical Specifications

- Supply Voltage: 220 VAC ± 10%
- Network Frequency: 50 ± 5 Hz
- Internal Loss: About 3 W
- Leakage Current Limit: 0.3-6, 1-20 A
- OFF Delay: 1 to 30 seconds, adjustable by DELAY potentiometer handle
- Output Relay: Single C/O Contact

- Contact Current: 6 A, 220 VAC- 6A, 28 VDC