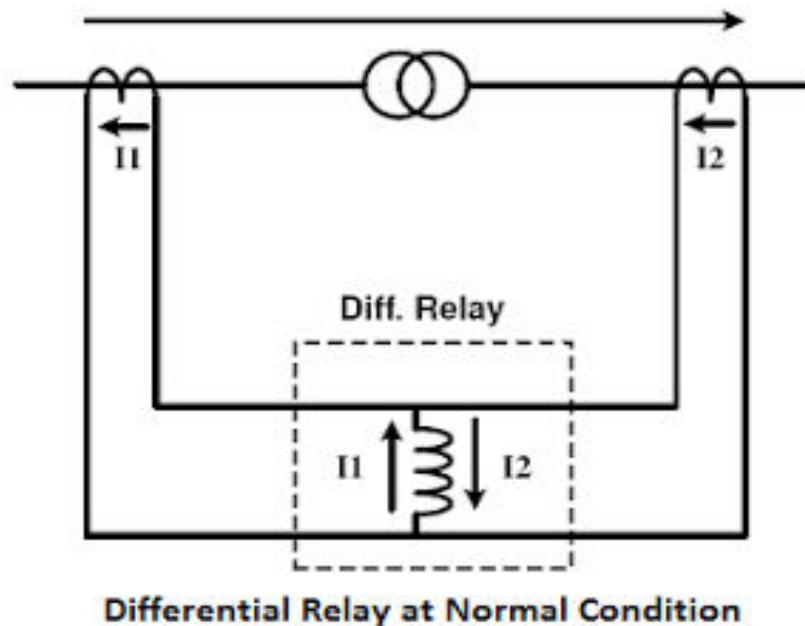


Differential relay

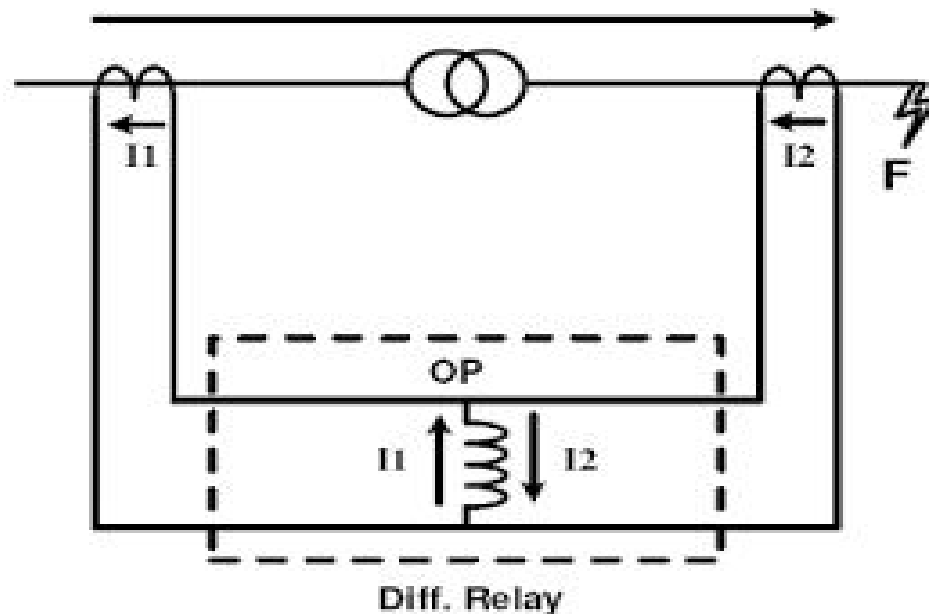
The relay which is used to check the difference between the output and input currents for power system current is known as differential relay. The difference amongst the currents may also be in phase angle or in magnitude or in each.

For safe and energetic operation, angle and magnitude variations must be zero. In case there's a difference which difference go beyond some value, the relay can work and interconnected electrical fuse can disconnect.



Allow us to assume an easy example of an influence power transformer with transformation magnitude (ratio) relation 1:1 and (Y/Y) connection and therefore the CT_1 and CT_2 ensure a similar transformation magnitude relation as shown. The current flows within the primary side and secondary side of power transformer are equal, presumptuous ideal power transformer. The secondary current I_1 and I_2 are same in magnitude and reverse in direction.

Therefore, the net current within the differential coil is nil at load situation (without any fault), and therefore the relay won't operate



Differential Relay External Fault condition

Assigning the previous one the power transformer with an external fault F is shown in figure. During this case the 2 currents I_1 , and I_2 can increase to terribly high magnitudes values however there's no modification in phase angle. Hence, net current within the differential coil continues to be zero and therefore the relay won't operate.