COMPONENT	RELAY TYPE	ANSI CODE	OPERATING PRINCIPLE	INPUT PARAMETERS	OUTPUT PARAMETERS
GENERATOR	Out-of-Step relay	78	Relay tracks the impedance by detecting the variations of the voltage/current. The variations is small during normal conditions however it changes nearly stepwise in the case of fault conditions. This means that the impedance is changed abruptly.	Current and Voltage (V,I)	Impedance (Z=V/I)
TRANSFORMER	Differential relay	87	Protects the transformer from internal faults by taking the current inputs from both primary and secondary side of the transformer. The sum of these currents (taking into consideration transformer turns ratio) is zero under normal conditions or external faults but not equal to zero in case of fault conditions.	Currents from primary and secondary side ($I_{primary}$, $I_{secondary}$)	Current (I)
TRANSMISSION LINE	Distance protection	21	A fault in a transmission line will result in the decrease of line impedance which is compared with a pre-defined threshold value. The trip signal will be sent to the breaker if the measured impedance is smaller than the threshold.	Current and Voltage (V,I)	Impedance (Z=V/I)
	Overcurrent protection	50/51	A fault in a transmission line will result in the increase of current passing through the line which is compared with a pre-defined threshold value. The trip signal will be sent to the breaker if the measured current exceeds the threshold.	Current (I)	Current (I)
LOAD	Under/Over voltage protection	27/59	A fault at the load bus will vary the terminal voltage. The measured voltage is compared with pre-defined threshold value. The trip signal will be sent to the breaker if it is lower / greater compare to the threshold.	Voltage (V)	Voltage (V)