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1. Difference between a controlled rectifier and uncontrolled rectifier.

The controlled rectifier is a circuit that is used to convert “Sinusoidal” AC supply into a unidirectional DC supply while also controlling the power allowed to be fed to the load. Silicon control rectifier is a common controlled rectifier type as it acts as a switch and only allows current to pass through when the polarity is forward biased. Even when forward biased controlled rectifiers can still stop conduction if power required for the load is too high or too small. While, the Uncontrolled rectifier also acts as a switch also called a diode can only allow current to pass in forward biased but does not control the amount of power fed to the load.4

1. Difference between single phase half wave rectifier and single phase full wave rectifier.

The single phase half wave rectifier only converts half of the A.C sinusoidal signal into a dc pulsating signal in the sense that if the rectifier only conducts when the AC signal is in positive polarity while the negative polarity is totally blocked and not used. While in full wave rectification, both polarities are converted into DC pulsating waves positive and negative polarities as it gives a more rectification efficiency of the rectification over half wave rectification.

1. Operational characteristics of DIAC

A DIAC is a semiconducting diode that belongs to the transistor family, It has two electrodes and is used as a trigger switch for thyristors. The DIAC only conducts voltage after it’s break even voltage has been reached ‘Vb0’. The DIAC can conduct on both polarities but from different terminals. If the voltage at one terminal is higher with respect to the other terminal, it conducts through that terminal and blocks from the other terminal and vice versa.

DIAC TRIAC

1. The TRIAC is a three terminal device terminals 1,2 and the gate. TRIAC just like DIAC conducts in both direction but the gate terminal serves as the control terminal it acts as a switch for both directions. The gate current is the minimum current required to switcj on the TRIAC. Though the TRIAC can be turned on without any gate current provided the supply voltage becomes equal to the break over voltage of the TRIAC but the normal way to turn on the TRIAC is by applying a proper gate current. As in case of SCR, here too, the larger the gate current, the smaller the supply voltage at which the TRIAC is turned on. TRIAC can conduct current irrespective of the voltage polarity of terminals MT1 and MT2 with respect to each other and that of gate and terminal MT2.