

FERRITES IN SOLAR ENERGY: SOLAR INVERTER

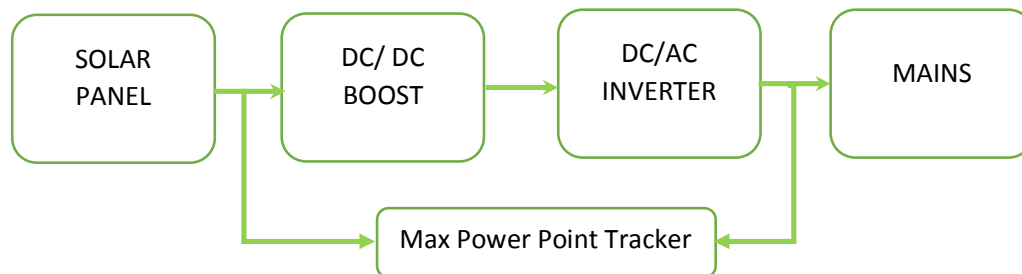
In solar inverters different types of ferrite are used from source generation to mains load.

Cosmo provides a wide range of ferrite with different shape and material to the renewable energy requirement.

Product requirement for Solar Inverter:-

- i) Efficiency and reliable
- ii) Customized and flexible design.
- iii) Cost Effective and better performance

Block Diagram of Solar Inverter:-



There are three main stages in conversion of DC to AC of Solar inverter:-

- i) **DC/DC converter:-**
DC/DC converter boosts the solar panel voltage to a level to invert the voltage to AC mains voltage.
Preferred Material: - High Saturation CF292,CF295
Shape: - E core, large RM core. E core can be stacked to handle large power
- ii) **Inverter: -** The inverter converts the DC power from the DC/DC boost to ac power. To smoothen the wave generated by switching at high frequency a reactor (inductive) is used.
PreferredMaterial: - CF292
- iii) **EMI filter: -** A common mode choke filters the noise that may be present between line and neutral either from the inverter or to inverter.
PreferredMaterial: -High Magnetic permeability material CF199 (Low frequency noise)
Preferred Shape:- Toroids/Ring Core>40mm diameter
- iv) **Maximum Power Point Tracker(MPPT):-** MPPT is algorithm that included in charge controllers used for extracting maximum available power for PV module. For this, accurate and reliable measurement input and output current is required. Hall Effect sensors with gapped ferrite core are used to measure the current. Incorporating gap in ferrite core, avoids thermal drift and provide linear current measurement.

Solar Inverter ferrite Selection: