

A brief description of Electronic Power Conditioner (EPC)

A MPM comprises a solid-state power amplifier (SSPA), a low-gain short-length travelling-wave tube (TWT) and a high-efficiency compact electronic power conditioning (EPC) housed in a single unit. A block schematic of a typical MPM is shown in Figure 1.

One of the important elements of the MPM is an Electronic Power Conditioner (EPC), a power supply for vacuum electronic device (TWT) and a low voltage supply for the solid state power supply. The EPC is constituted with high efficiency HV converter unit, a focus electrode modulator unit and the house-keeping power unit apart from a microcontroller based MPM management unit. The HV converter delivers all the high voltage requirements of the cathode and depressed collectors of the TWT.

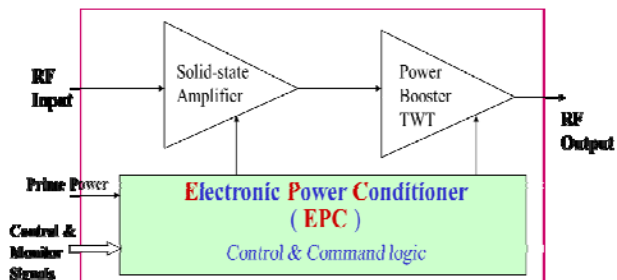


Fig.1 MPM Block Schematic

The management unit coordinates the sequencing, fault monitoring and protection mechanisms and also handles the command interface module. The HV converter has high density planar power transformer and high voltage ceramic capacitors with low ESR, ultrafast recovery diodes etc packaged in limited volume for achieving high power conversion density. The high level block schematic of EPC is depicted in figure 2. A typical EPC assembled in aluminium chassis is shown in figure 3.

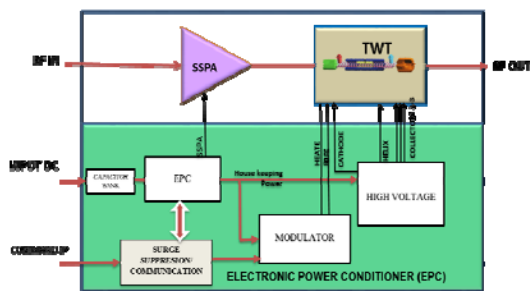


Fig.2 EPC Block Schematic

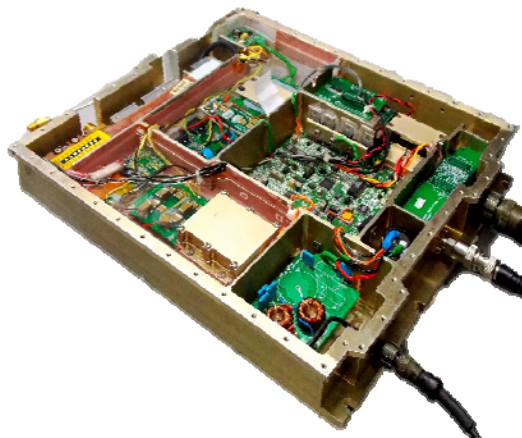


Fig 3 : EPC assembled in Aluminium Chassis