

## Monochrome Television transmitter

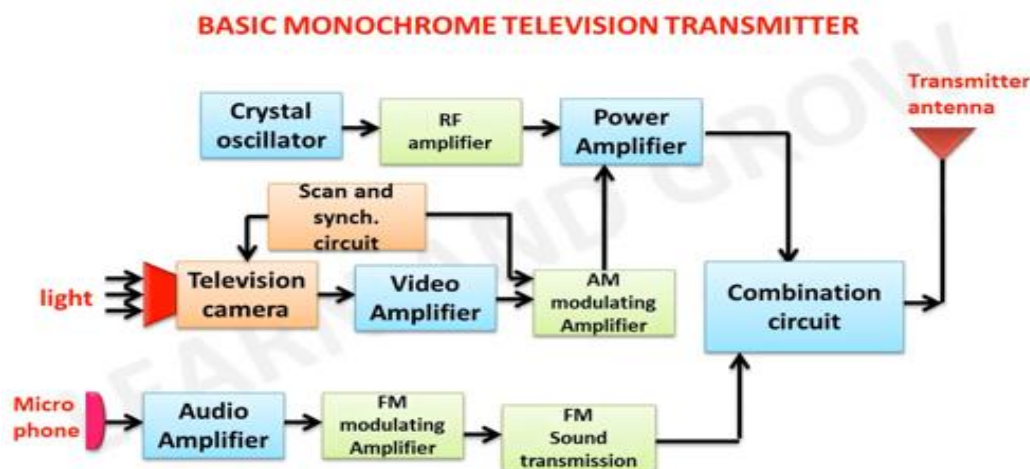
A television transmitter is a device which broadcasts an electromagnetic signal to the television receivers. The word monochrome stand for *Black and white*. Monochrome tv transmitter means transmission of black and white signal. Television transmitters may be analog or digital. There are many types of transmitters depending on

- The system standard
- Output power
- Back up facility, usually the Modulator, Multiplexer and Power Amplifier
- Stereophonic (or dual sound) facility, for analogue TV systems
- Aural and visual power combining principal, for analogue TV systems
- Active circuit element in the final amplifier stage

### Working of a Monochrome TV Transmitter

A Television transmitter essentially consists of a video modulator and an audio modulator. The video signal is generated from the TV camera while the audio or sound is from the microphone. The Video as well as audio signals have to be amplified to the desired degree before they modulate their respective RF carriers. This function is performed by video and audio amplifiers. Both signals are modulated differently; Video signal transmitter employs an AM transmitter as amplitude-modulation is used for video signals whereas audio signal transmitter employs FM modulator as frequency modulation is used for sound information. The Crystal oscillator generates an RF carrier frequency for the AM and FM transmitters. The carrier is then fed to an amplitude modulator in video transmitter and a frequency modulator in audio transmitter. Scanning circuits are used to make the electron beam scan the actual picture to produce the corresponding video signal. synchronizing Circuits are used at the transmitter as well as receiver. Video and audio signals on separate carriers are then combined together in the combination circuit so as to be fed to the transmitting antenna as one signal. Only one antenna is used for transmission of the video as well as audio signals

### Block diagram of a Monochrome TV transmitter



**Microphone:** - Microphone is a type of transducer which is used for change the audio signal into electrical signal by sensing of sound variations pressure.

**Audio pre amplifier:** - In this block class A voltage amplifier amplify the weak signal into a desire level signal which is output of microphone.

**Camera:-** It convert the optical signal, means light into image signals charge.

**Scanning and sync circuits:** - The function of scanning to convert the charge image into video signal varying with time to make it suitable for radio transmission. The Blanking pulse and synchronization pulse block uses sawtooth signal to provide trace of respective scanning process and falling edge provide retrace.

**Video pre amplifier and power amplifier:** - These block are used for amplify composite video signal by video pre-amplifier and finally by the power amplifier to give sufficient power required for amplitude modulation.

**Video carrier Generator (RF oscillator):-** The broadcast transmitter transmit at one and only one allowed frequency. This frequency are generated by RF oscillator.

**Radio carrier generator:** - In this blog a crystal oscillator are used for the purpose of carrier generate.

**Amplitude modulation:** - Used for modulation of amplified video signal and RF carrier is to be done

**FM modulation:** - The modulator is used to modulate the audio signal for transmission.

**Combination circuit:** Video and audio signals on separate carriers are then combined together in the combination circuit so as to be fed to the transmitting antenna as one signal.

**Transmitting antenna:** - By this antenna we can transmit signal. This antenna change the electrical signal into electromagnetic waves signal .