



1. Radio Dish – Collects radio waves from the sky with its huge surface. Being parabolic in shape, it focuses the radio waves towards its focus.



2. Antenna (or feed) – Receives the focused radio waves from the dish and converts it into electric current at its terminals.



3. Pre-Amplifier (or Low-noise amplifier) – The detected radio signals are very weak and they have noise. Its important to improve the signal-to-noise ratio at this early stage before amplifying the entire signal later, which would otherwise blow up the noise as well. Pre-amplifier boosts-up the signal while adding as little noise as possible.



4. Mixer – its preferable to bring the signal to a lower frequency; this would also avoid possible feedback. The mixer combines the signal frequency with another signal from the *local oscillator (LO)*, which results in 2 signals, one at the input signal frequency plus the LO frequency and the other at the input signal frequency minus the LO frequency. The higher one of these is filtered out and the lower is used for further processing.



5. Amplifier – converts a low power signal to a high power one so that the signal can be detected and analysed further.



6. Detector – takes the signal as input and as an output gives a DC signal which is proportional to the square of the incoming signal.



7. Integrator – the signal still varies and fluctuates rapidly in intensity, so integrator smooths it out by time-averaging the signal. This also improves the SNR.



8. Recorder – converts the signal into digital information and records it on a computer.