

# FM TRANSMITTER CIRCUITS-THE BIG LIST

Over years we have developed a number of FM transmitter circuits with various aspects. Today I thought of listing all of them here as a single web page, so any one can easily navigate through all the radio transmitter circuits and its schematic diagrams.

**Simple Two Stage FM Transmitter** – This is one of the most simple FM transmitter circuit you can try out on your breadboard. It has two stages served by two transistors Q1 and Q2. The first stage is the preamplifier stage where audio input signal is amplified before modulation. This stage is served by Q1 (BC108). Second stage is the modulation stage in which amplified audio signal is modulated (superimposed to a carrier wave) for transmission. This stage is served by Q2 (2N2369). Carefully observe the schematic diagram before you build this circuit.

**200 Meter Transmitter** – This one is yet another simple FM transmitter but more stable than the one listed above. The basic functioning of the circuit is same as the above one, two stages served by two transistors – first stage as preamplifier and second stage as oscillator and modulator. Many of the readers has posted comments in this circuit asking how to calculate frequency of the output wave and how to make inductor for the tank circuit. Both questions are answered in comments section by **Seetharaman** and **John**

**IC based FM Transmitter** – Instead of two transistor stage transmitter as we saw above, here we use an IC – UPC1651 (wide band UHF MMIC amplifier). The use of IC makes possible easy wiring and assembling of the circuit. You only need to worry about giving input and the tank circuit for creating oscillations.

**Stereo FM Transmitter using BA1404 IC** - This is a stereo FM transmitter circuit using an IC from Rohm semiconductors named BA1404 – which is a monolithic IC and has built in stereo modulator, FM modulator, RF amplifier circuitries. This FM modulator can be operated between 76 to 108Mhz.

**Stereo FM Transmitter using PLL** – This is one of the high quality FM transmitters available in this list and obviously it comes with a complex circuitry. This circuit is made using IC BH1417 (which is a PLL stereo transmitter IC from Rohm semiconductors). The IC has separate audio processing sections for the left and right channels, pre emphasis circuit for improving signal to noise ratio, crystal control circuitry for accurate frequency locking, multiplex circuit for making sum etc. Starting from 88.7Mhz, there are 14 possible transmission frequencies incrementing in steps of

0.2Mhz and can be selected using a dip switch in the circuitry. The precise PLL circuitry of the IC ensures no frequency drift.

**Long Range FM Transmitter** – This is one of the low cost circuits you can make to build a long range transmitter. The basic working is same – it’s a two stage transmitter. Though it seems small in number of components and easy to understand, you have to be careful while designing and making this circuit. Author has described its assembling carefully and you can find many things to take special care of while assembling the circuit. I advice you follow and understand the circuit schematic diagram carefully.

## FM Transmitter Projects for your school/college needs:-

An FM transmitters is always an interesting project to do while you are in school or even at college 😊 You can “wow” your peers with your magician like circuit designing capabilities. Here I list some circuits which can be used to build FM transmitter as a project for your school/engineering.

**2 Kilometer FM Transmitter** – Its really easy to make a transmitter in short range – may be a few meters. But the real challenge in design comes when you need to transfer it across kilometers. Here we have a cool circuit which can transmit in a range of 2 Kilometers. Here is the project idea:- Why cant you build a college FM station – where students air their programs like solo songs, speeches or anything they like ? Interesting rite? All other students can receive programs using their mobile phones!

**FM Radio Jammer** – The above circuit helps you to make an FM radio station in your college. Here we have another one that helps you to jam all the radio stations in the vicinity of your school/college. **Note:-** It is illegal to make a jammer circuit. You have to assemble this circuit on educational purpose only and must not misuse this circuit.

**Mini FM** - Got fancied by the name? It is nothing but an FM transmitter with minimum components. You can transmit upto 50 meters using this circuit.

## Other interesting circuits:-

**The most simple FM:-** Here you can find the most simple circuit to make a transmitter. This is just an elementary circuit and there is no guarantee of performance or range. You can assemble it with minimum components in a couple of minutes.

**FM Receiver Circuit** - So far we have been talking about FM transmitter circuits. What about building one for receiving? I know you don't need such an application in this times because a mobile phone will solve the need. But still here is the circuit if you are interested in building one for yourself. This FM receiver circuit uses CXA1019 is a bipolar silicon monolithic FM/AM radio receiver IC from Sony.

**Transmit your telephone** - This is an interesting circuit where you can transmit your telephone conversations in FM. It is a simple circuit that you can assemble with your commonly available components and 3 transistors. To avoid noise problems – you better assemble this circuit in a good quality PCB.

**Single Chip FM Transmitter** – Here is a single chip FM Transmitter made using IC MAX2606 from Maxim semiconductors. The MAX2606 is a compact, high-performance intermediate frequency VCO specially designed for wireless communication circuits. By adjusting the POT R1 in the circuits you can adjust transmission frequencies between 88Mhz and 108 Mhz.

**FM Tracking Transmitter** :- It is nothing but a 555 timer tone generator at the audio input. You can use this to test the FM transmission. The circuit can also be used as a remote control transmitter.

**FM Demodulator using PLL** – This is a good circuit of an FM demodulator with schematic diagram, design of fm demodulator, and working of PLL with block diagram. This will definitely be useful for your educational purposes.

**FM stereo demodulator using AN7415** – Stereo demodulation is well explained in this circuit application.

**FM Adapter for your Car stereo** :- A simple low power FM transmitter using transistor 2N222. This circuit application can come handy when you don't have an auxiliary input for your car stereo or car audio device. You can plug this transmitter to the audio out of your Ipod or mobile phone and play directly through you car audio system. This idea can also be used when you need to play from audio devices that don't support file transfer!

Okay! Now we have listed almost all important circuit applications related to FM – Transmitters, receivers and demodulators. Some other interesting applications are also listed like jammer, car adapter etc. You can give your opinions as comments below and also I request you to give links to other FM related projects in this comments section.

Source : <http://www.circuitstoday.com/fm-transmitter-circuits>