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300 Watt ERP FM Transmission System

The equipment in this system will allow you to broadcast to a distance of 45km, depending on the height of the antenna, and the terrain of the surrounding area.

Transmission Equipment

1 150 Watt Transmitter
1 5/8 Ground Plane Antenna
50 Ω RF Coaxial Cable 70m
Frequency Counter
SWR / Power Meter
Dummy Load
Lightning Arrester
PL 259 Connectors
Electrical Supplies
Maintenance Tools and Supplies

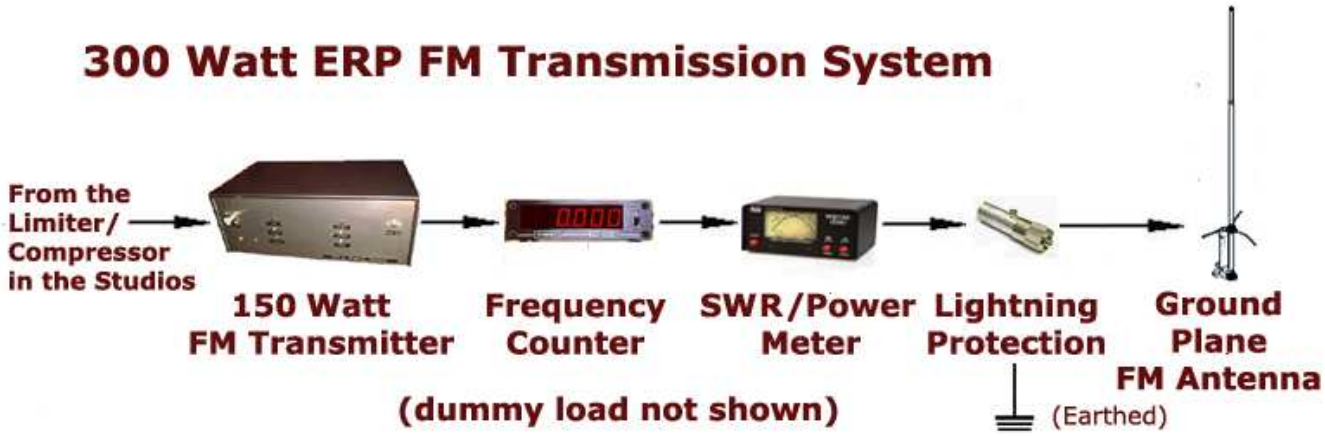
TOTAL **£2000** (excl. shipping and customs)

The following items are not supplied but are required and should be sourced locally:

Radio Studios
Antenna Tower / Mast
Voltage Regulator
Copper Grounding Cable and 4' Copper Tube for Lightning Protection

ERP stands for ***Effective Radiated Power.*** This refers to the actual power of the signal being broadcast from the antenna. ERP is a combination of the power of the transmitter (in this case 150 Watts) plus the gain of the antenna (in this case 4.8dB), minus the power lost through the cable between the transmitter and the antenna. It varies from system to system, but can be estimated with a knowledge of the components involved.

Please note: any equipment can be added to or removed from this package to suit specific project needs. Please contact us to discuss your particular requirements.



In this system, the audio signal from the studios is fed into the **transmitter**, which converts it into a radio frequency signal, and amplifies the signal to 150 Watts. This is fed into the **frequency counter**, which monitors the frequency of the broadcast. From there the signal goes into the **SWR/Power Meter**, to monitor the power and efficiency of the system. The signal then passes through a **lightning arrester**, which is connected to the earth via a copper grounding cable and 4' copper rod. From there the signal is sent to the **antenna**, to be broadcast to the surrounding area.

All connections from the transmitter to the antenna are made using **50 Ohm coaxial cable**.

150 Watt FM Transmitter

The transmitter is the heart of the transmission system. Connecting this 150 Watt transmitter with a 4.8dB gain Antenna will provide an average of 300 Watts ERP (including cable loss).

ERP stands for *Effective Radiated Power*, and refers to the actual power of the signal being broadcast from the antenna, as opposed to the power of the signal being generated by the transmitter.

The 150 Watt transmitter can be supplied as mono or stereo. A mono transmitter will generally give you a clearer signal and go a little further. But a stereo transmitter gives you a stereo signal. The price is the same, the choice is yours.

SWR/Power Meter

SWR stands for "Standing Wave Ratio". It is a measurement of the efficiency of the transmission system. This device measures the SWR and power of the system.

Frequency Counter

The frequency counter is a simple device used to monitor the radio frequency that the station is broadcasting on.

RG 213 or RG8 50 Ohm Coaxial Antenna Cable

It is important to choose the right cable, as a lot of power can be lost with the wrong cable. RG 213 or RG8 are suitable for carrying an FM signal of 150 watts to a distance of 60 – 75 metres. For longer distances a thicker cable should be used. This cable goes between the transmitter, swr meter, frequency counter, lightning arrestor and antenna.

"Wide End" PL259 Connectors

"Wide end" PL259 connectors are used with RG213 antenna cable. A connector must be soldered to each end of each piece of cable used. The PL259 connects with the SO239 connectors which are on every piece of transmission equipment.

Lightning Protection

This consists of a small lightning arrestor, fitted between the antenna and SWR Meter. It should be connected to a copper cable feeding to a copper rod buried into the earth (copper cable and rod should be sourced locally).

Dummy Load

A dummy load is used to test the transmitter without connecting it to an antenna. A transmitter should NEVER be switched on without being connected to a load, which under normal circumstances would be an antenna. If it is switched on without a load, it can burn out. So if a transmitter needs to be tested, but for some reason cannot be connected to the antenna, then a dummy load is used.

5/8 Ground Plane Antenna

This antenna gives a boost of 4.8dB to the power of the signal being broadcast. This is increases the power by roughly 2.8 times! With loss from cables and connectors included, this will equate to an ERP of 300 Watts when connected to a 150 Watt transmitter. It must be attached to a 3-4 metre long metal pole with a diameter of 25-50cm. This must be placed as high as possible, to cover as large an area as possible.