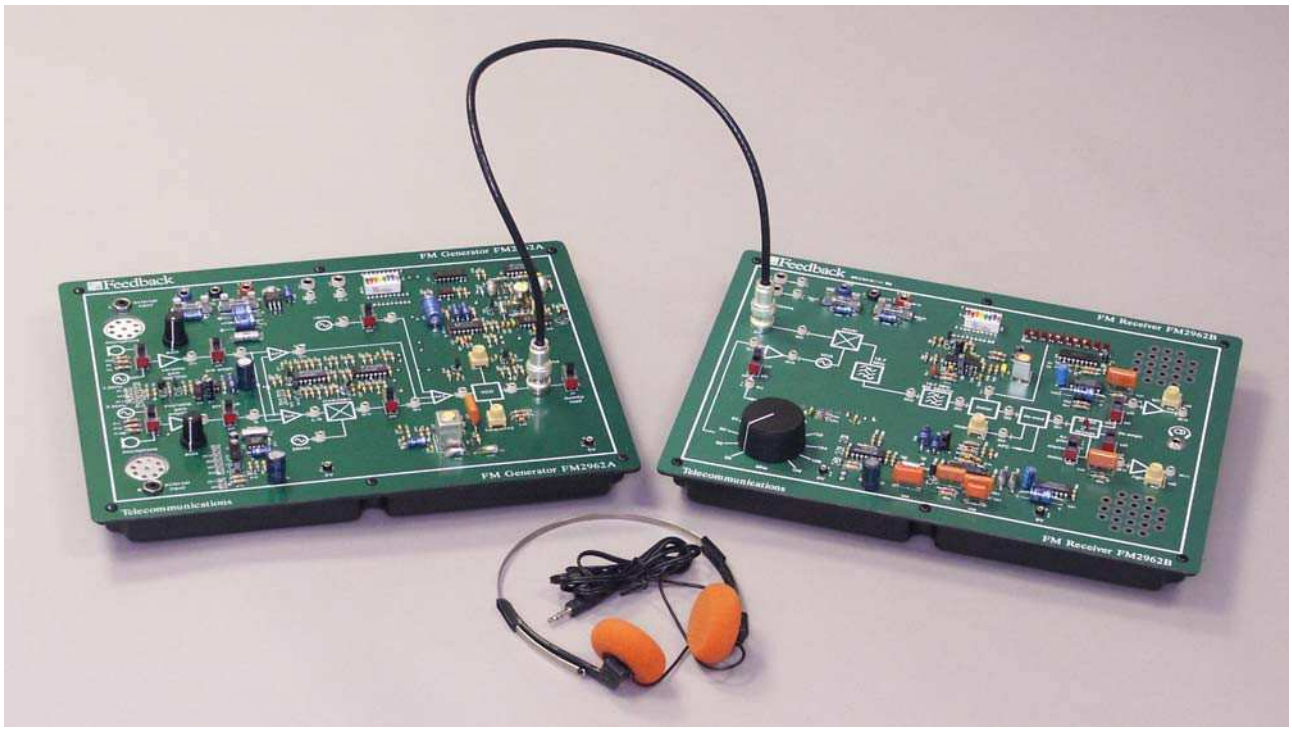
FM Stereo Radio Systems Trainer FM2962



Description

The FM receiver circuits operate over a range of 88 - 108MHz and the generator provides a fixed output frequency of 100MHz with a 19 kHz pilot tone.

The generator output is only a few milliwatts, so the range of transmission is extremely limited and no licence is required.

The receiver operates on an IF frequency of 10.7MHz in stereo or mono mode and may also be used with an external antenna to receive normal broadcast and amateur signals.

Switched faults may be introduced on both generator and receiver units. On the receiver, fault options include Multiplex, Pilot tone and Mute errors; power for tuner, audio and demodulator, forces tuning volts to zero and high-gain AFC loops locking to a signal.

Switches on the generator create left/right signal, VCO supply, modulated subcarrier, baseband, 19 kHz pilot tone, 38 kHz oscillator and phase shift fault options.

Features

- Covers the principles of FM radio signal generation and reception
- Stereo transmission and reception
- Extensive use of monitor points for signal tracing
- Switched faults on both generator and receiver
- Built-in microphones and speakers, plus stereo headphones
- Transmission medium may be coaxial cable, or very limited range on-air
- Low transmission power, less than 10 mW

Practical Work

- Frequency Modulation
- Basic FM reception
- Stereo Transmission
- Stereo Reception
- Simulated Faults

Specification

FM Stereo Generator FM2962A Audio section	**Input:** Two internal microphones. **Internal:** 1.2kHz and 2.4kHz reference sine waves. **External:** Via 2.5mm jack socket 180 ohm input impedance. 10 – 500 mV pk-pk. **Bandwidth:** 30Hz - 15kHz. Control (deviation) for audio gain. Monitor points for audio amplifier input, output and control; audio before and after pre-emphasis.
RF section	**Output frequency:** 100 MHz. **Output impedance:** 50 ohm. **Output power:** 10 mW max Control for output power, stereo/mono and output frequency. Monitor points for modulator and stereo encoder inputs and outputs.
FM Stereo Receiver FM2962B Audio section	Input from Quadrature Detector or Multiplex Stereo Decoder. Output to on-board 8 ohm 200 W loudspeakers and 2.5 mm jack socket. **Output power:** 2W per channel maximum. **Frequency range:** 30 - 20kHz.
RF section	**Output frequency:** 88 – 108 MHz. **IF frequency:** 10.7 MHz. **IF bandwidth:** 280 kHz. **Detector:** Quadrature with multiplex stereo decoding. Control for tuning and AFC. Monitor points for IF, Audio AFC, decoding and limiter action.
Switched faults	**Generator:** Eight different faults. **Receiver:** Eight different faults. Indicators for signal strength and pilot tone detection (stereo indicator).
Manual supplied	FM Stereo Radio Systems Trainer FM2962.
Power requirements	External ±15 V d.c. 1.5 A. Feedback d.c. Power Supply 01-100 is recommended.

Dimensions and weight	Each board: **Width:** 296 mm **Height:** 45 mm, **Depth:** 220 mm **Weight:** 1.1 kg.
Ancillary test equipment	The following items of test equipment are required in addition to the FM2962. A 15 MHz Oscilloscope d.c. coupled, 2-channel with X-Y. A Multimeter.
Ordering Information	FM Stereo Radio Systems Trainer FM2962 dc Power Supply (+5V d.c. 1.5 A, ±15 V d.c. 1.5 A) 01-100

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