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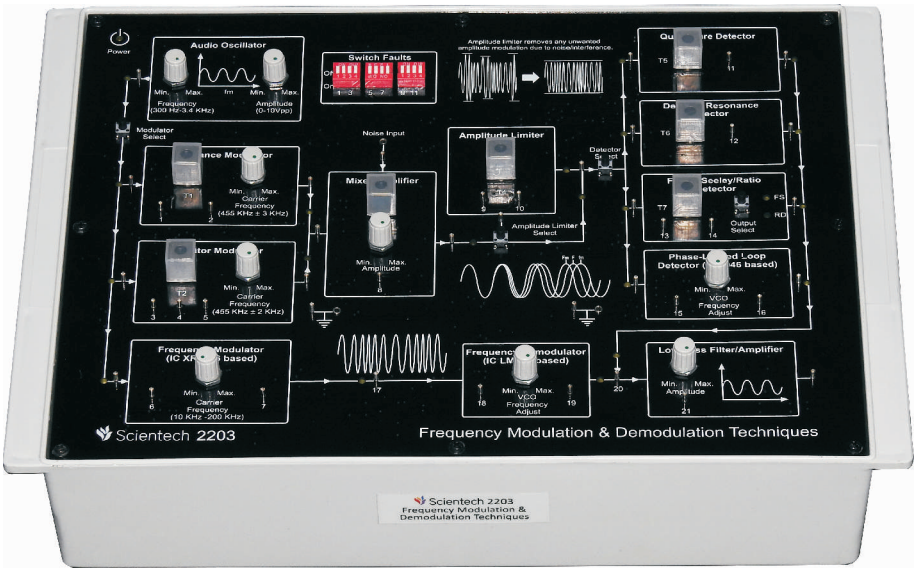
Frequency Modulation & Demodulation Techniques

Scientech 2203



Scientech 2203 Frequency Modulation and Demodulation Techniques is a comprehensive learning solution specifically designed to study basic operation as well as to provide conceptual and step by step understanding of frequency modulation and demodulation techniques through observation of waveforms at various test points. Block wise modular organization of circuit function with supporting technical information makes it easy to understand the process of FM generation and detection. The exercises conceived to provide a practical approach to the subjects enable a deep analysis of the subjects and will guide the students to understand each function.

Features

- Easy to operate & understand
- Functional blocks with self explanatory waveforms and technical details indicated on board
- On board Audio Oscillator, Frequency modulators/demodulators, Mixer/Amplifier, Amplitude limiter & Filter circuits
- Effect of noise on the detection of FM signal can be investigated
- LED indication for signal flow and selection
- More than 35 nos. Test points for waveform observation and analysis
- 12 Switched faults for troubleshooting at different functional blocks
- Online Product Tutorial

Scope of Learning

Study of :

- Frequency Modulation using Reactance Modulator
- Frequency Modulation using Varactor Modulator
- Operation of Quadrature Detector
- Operation of Detuned Resonance Detector
- Operation of Foster - Seeley Detector
- Operation of Ratio Detector
- Operation of Phase-Locked Loop Detector (IC4046 based)
- Frequency Modulation using VCO based Frequency Modulator (IC XR2206 based)
- Phase-Locked Loop detector (IC LM565 based) as a Frequency Demodulator
- Frequency deviation and modulation index using VCO based Frequency Modulator (IC XR2206 based)

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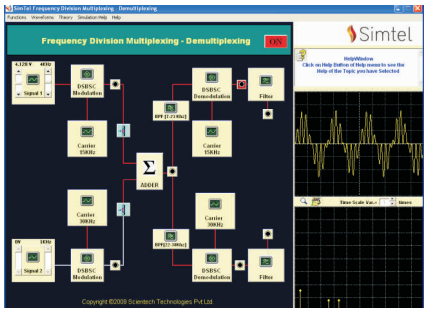
Technical Specifications

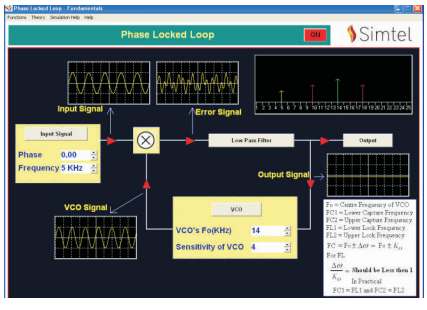
Audio Oscillator	:	Sine wave (10Vpp adjustable), Frequency (300 Hz - 3.4 KHz)
FM Modulators	:	3 nos.
Reactance Modulator	:	Carrier Frequency - 455 KHz (± 3KHz)
Varactor Modulator	:	Carrier Frequency - 455 KHz (± 2KHz)
VCO Based Modulator	:	Carrier Frequency - 10 KHz - 200KHz (adjustable) (IC XR2206 based)
Mixer / Amplifier	:	Allows FM input signal to be amplitude modulated by a noise input prior to demodulation, with gain adjustment.
FM Demodulator	:	6 types.

- Detuned Resonant Detector
- Quadrature Detector
- Foster-Seeley Detector
- Ratio Detector
- Phase-Locked Loop Detector (IC HEF4046 based)
- Phase-Locked Loop Detector (IC LM565 based)

Low Pass Filter	:	3.4 KHz Cut off Frequency Amplifier (with adjustable gain)
Amplitude Limiter	:	1 no.
Switched Faults	:	12 nos.
Test Points	:	40 nos
Power Supply	:	230 V ±10%, 50 / 60 Hz
Power Consumption	:	3 VA approximately
Operating Conditions	:	0-40°C, 80% RH
Weight	:	3 Kg approximately
Dimensions (mm)	:	W 326 x D 252 x H 52
Included Accessories	:	Patch cord 16":2 nos., Mains cord:1 no.
Optional	:	Scientech DSO 401

Simtel 10 - Analog Communication Interactive Software (optional)





Topics

- Fourier analysis
- Amplitude Modulation: Standard Amplitude Modulation, DSBSC Modulation, SSB Modulation
- Frequency Division Multiplexing
- Frequency Modulation: Direct Modulation, Indirect Modulation
- Pulse Modulation: Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation
- Phase Locked Loop
- Super Heterodyne Receiver

For more details refer Simtel 10 Catalog

Subject to Change

Designed and Manufactured in India by -

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