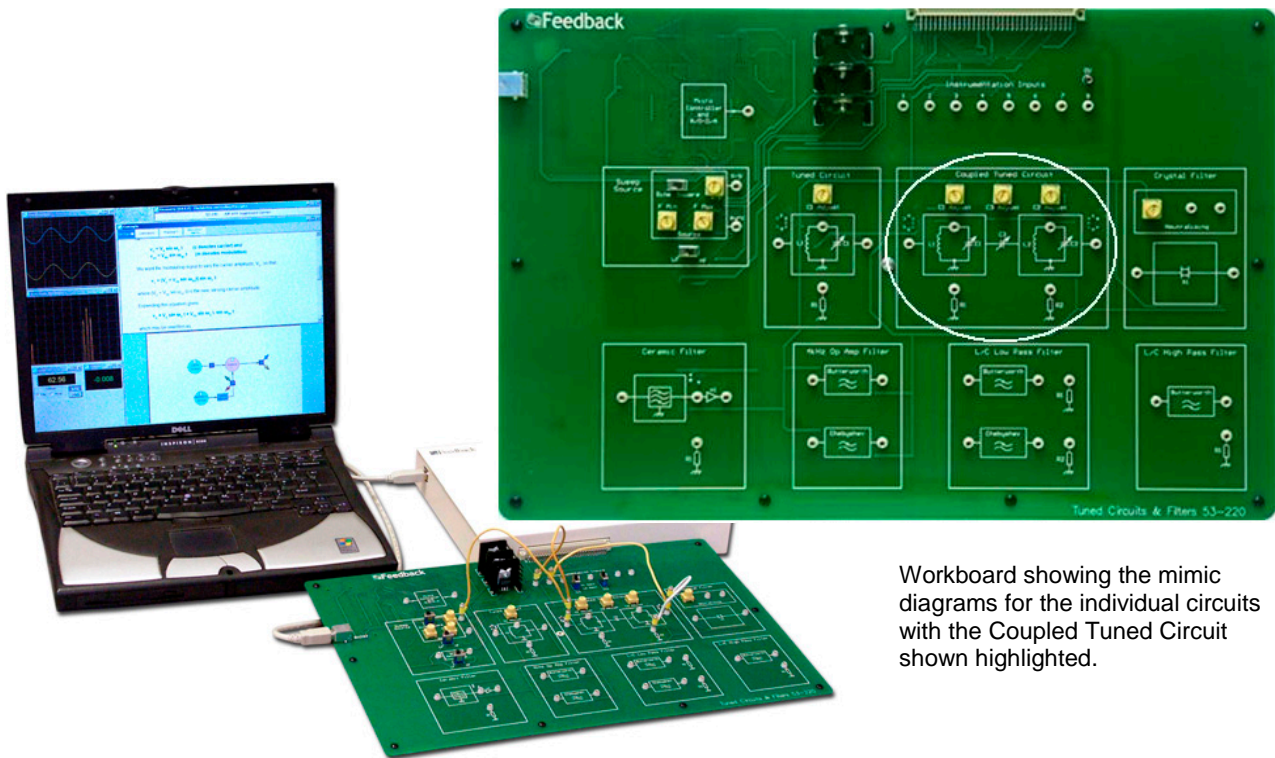


Tuned Circuits and Filters

53-220



Workboard showing the mimic diagrams for the individual circuits with the Coupled Tuned Circuit shown highlighted.

Features

- Suitable for both technician and undergraduate teaching
- Complete trainer, requires only a PC
- Computer based assignments
- Covers an introduction to Tuned Circuits and Filters
- Integrated hardware and software environment
- On-screen background, theory and practical instructions
- Software provides embedded Instrumentation (includes Automatic Bode & Nyquist plot)
- No costly additional instrumentation required
- Stand-alone workstation

Description

This modern training system provides a learning platform that involves the interaction between hardware, software, PC and the student. It has been specifically developed to convey the theory of a wide variety of subjects in a way that enhances the learning experience through visual presentation and interaction with the subject matter.

The Tuned Circuits and Filters workboard (53-220) is one of a set of three that are related to the subject of Telecommunications. Two other workboards covering Amplifiers and Oscillators (53-210) and Modulation and Coding (53-230) are available, the complete set forming a comprehensive telecommunications course.

The Tuned Circuits and Filters workboard contains a variety of circuits that are studied individually and collectively by inter-connecting the various circuits together. These circuits consist of a Sweep Source, Tuned Circuit, Coupled Tuned Circuit, Crystal Oscillator, Ceramic Filter, 4 KHz Amplifier, LC Low Pass Filter, and LC High Pass Filter.

The workboard is connected to a PC via a USB Real-time Access Terminal (92-203 RAT). The RAT also provides all the necessary power supplies for the workboard to operate.

Integrated with the hardware is a comprehensive laboratory software package comprising full student instruction for performing the many assignments and practical activities, together with relevant background and theoretical information. The software also provides the instrumentation required for the monitoring and measurement of the workboard signals. Software for editing the course content is available, Discovery Tools (93-400) and for adding multimedia materials, Discovery Course Manager (93-410).

Curriculum Coverage

The curriculum supplied with the 53-220 work board is an integral part of the product installation supplied on CD. The assignments available are displayed on the screen for selection by the student, consisting of a choice of eight main headings with up to four practical assignments under each heading.

Familiarisation

Equipment connection and operation
Using Discovery Software

Active Filters

Butterworth active low pass filter
Chebyshev active low pass filter
Higher order active filter

LC low Pass Filters

Butterworth LC low pass filter
Chebyshev LC low pass filter
Higher order LC filter

LC High Pass Filter

Butterworth filter

Tuned Circuit

Frequency response
Using the GPA (Gain Phase Analyser)
Loading the tuned circuit
Transient response

Coupled Tuned Circuit

Frequency response (single circuit)
Coupled frequency response
Loading the coupled circuit

Crystal filter

Frequency response
Neutralisation

Ceramic filter

Frequency response
Terminating the filter

Specification

The software instruments provided are:

- 2-channel oscilloscope
- Gain Phase Analyser (GPA)
- Frequency counter
- Voltmeter

Dimensions & Weight

Dimensions: 410mm x 270mm x 60mm
Weight: 1 kg.

Tender Specification

- [1] A self-contained, telecommunications trainer.
- [2] To be used for teaching the principles of tuned circuits and filters through the use of a work board.
- [3] The workboard to operate with a Real Time Access Terminal (RAT) enabling connection to a PC via a USB.
- [4] To be supplied with interactive software which includes teaching curricula and PC-based instrumentation.
- [5] The PC-based instruments to be allowed to be opened all at the same time in a Windows environment.
- [6] PC-based instruments to include all of the following: Oscilloscope, Frequency Meter, Voltmeter, and Gain Phase meter.
- [7] Curriculum to cover Tuned Circuits and Filters.
- [8] Eight assignments to be provided with up to four sub-practicals.
- [9] Standalone workstation with the option to add course manager and editing tools software packages.
- [10] Workboard to have dimensions approx. 410mm x 270mm x 60mm and weight approx. 1kg.
- [11] To be supplied with an experimental manual.
- [12] To be supplied by a company offering a 2 year parts and labour warranty.

Ordering Information

Tuned Circuits and Filters Workboard 53-220
USB Rapid Access Terminal (RAT) 92-203

Discovery Development Software

Discovery Tools 93-400
Discovery Course Manager 93-410



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