Module TPS - 3421

Analog Communication Training System

Cristiani srl
Viale Allea 39 - 27049 STRADELLA (PV)
Tel 0385 42975 - **Fax** 0385 240077
E-mail cristiani@cristianisrl.it
Web http://www.cristianisrl.it

Technical Characteristics

The trainer is enclosed in a metal case, which has a wide experiment printed circuit board (22 cm x 34 cm). This ensures easy handling and good visibility of the components.

The components are located on the board, which has a silkscreen print of the analytical circuit and component drawings. The central part of the experiment board includes all the circuit block drawings and the all the hands-on components and test points.

The fixed components are located on the circuit board under a sturdy transparent cover.

The system includes a built-in power supply with +12V, +5V, and variable DC voltage outlets. An included external low AC voltage power adapter feeds the system. The system includes:
• RC oscillator
• Crystal oscillator
• Wein bridge oscillator
• Pre-amplifier with microphone
• AM/FM modulator
• RF transmitter and antenna
• Tuner RF amplifier and antenna
• Mixer and frequency converter
• Resonator tuned amplifier with AGC circuit
• Band pass filter and slope detector
• PLL, VCO, and FM detector
• AM detector
• Audio amplifier, volume potentiometer, and speaker
• SES Lab unit with two-channel scope and function generator, which communicates with a PC to control the function generator and display the scope's signals, including spectrum analysis
• PC software for SES lab unit

Objectives

This course introduces the student to analog AM/FM communication. The course provides comprehensive hands-on experiments in measuring radio signals, oscillators, amplifiers, filters, modulators, demodulators, mixers, and AM/FM communication circuits.

Description

The system is stand-alone, containing all the necessary electronics components needed for performing the experiments.

The system includes the SES Lab unit with two-channel oscilloscope and a function generator, which communicates with a PC to control the function generator and display the scope's signals, including spectrum analysis.

The built-in function generator also can be operated manually, controlled by the embedded micro-controller.
A sine or triangular waveform at a constant or sweep frequency is available.

Experiments

This system enables the student to perform several experiments and covers the following topics:
• RC oscillator
• Crystal oscillator
• Wein bridge oscillator
• Pre-amplifier with microphone
• AM modulation
• FM modulation
• RF transmitter
• Tuner RF amplifier
• Signal mixer
• Local oscillator
• Frequency converter
• Super heterodyne receiver
• Tuned (IF) amplifier frequency response
• AGC – Automatic Gain Control Amplifier
• Resonator tuner amplifier
• Band pass filter and slope detector
• PLL, VCO, AFC
• FM detection
• AM detection
• Audio amplifier

A teacher guide, a student experiment manual accompany the system .