

## BJT Oscillators (All Types)

### Model : SE-144/SB-923

**SINCOM SE-144 BJT Oscillators** is a Five -In-One remarkable combined trainer to study the concept and operation of Hartley, Colpitts, RC Phase Shift, Wein Bridge and Crystal Oscillator with LC / RC positive feedback to generate RF/AF Output Frequency using BJT with facility to select multiple radio/audio frequencies in a simple experimental way.

### Features

- ❖ Separate modules of all Oscillators
- ❖ Hartley Oscillator- BJT self bias CE Amplifier with 2 Inductors & 1 Capacitor as LC Feedback elements.
- ❖ Colpitts Oscillator- BJT self bias CE Amplifier with 1 Inductor & 2 Capacitors as LC Feedback elements.
- ❖ RC Phase shift Oscillator- BJT Fixed base bias CE Amplifier with 3 RC network as Feedback elements.
- ❖ Wein Bridge Oscillator - BJT two stage RC Coupled self bias CE Amplifier with RC lead-lag feedback network.
- ❖ Crystal Oscillator-BJT circuit of a self bias CE Amplifier mode with Crystal Feedback elements.
- ❖ Separate Capacitor Bank to provide Two output frequency in RF range.
- ❖ RC Network Bank to provide Two output frequency in AF range.
- ❖ Two sets of RC lead-lag Network to provide Two output frequency in AF range.
- ❖ Facility to select the two output frequencies.
- ❖ In-Built Fixed regulated DC Power Supply
- ❖ User friendly Design
- ❖ Very Easy for Operation
- ❖ Multi color Circuit Diagram is printed on the front panel of the white board
- ❖ Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- ❖ Facility to connect external Oscilloscope and Digital Meters.
- ❖ Interconnections by 2mm high quality banana sockets and pins
- ❖ Maximum Test points to explore all the corners of experiment
- ❖ 1 Year Warranty

### Technical Specifications

▪ AC Mains Power Supply	: 230V $\pm$ 10%, 50Hz
▪ DC Power Supply	: IC Regulated Fixed +12V/300mA
▪ Oscillator Types	: Hartley, Colpitts, RC Phase Shift, Wein Bridge & Crystal
▪ Transistor Type and Package	: Six BJT Silicon-NPN BC548, TO-92 Package
▪ Amplifier Type	: Single Stage, Two stage RC Coupled, CE Amplifier
▪ Feedback Type	: Positive
▪ Feedback Elements	: Hartley - 2 Inductors & 1 Capacitor, Colpitt - 1 Inductor & 2 Capacitors RC Phase Shift- RC Network of 3 Resistors and 3 Capacitors Wein Bridge - RC lead lag network Crystal type - 3.2768 MHz Crystal feedback

▪ Output Control	: By two capacitors
▪ Output Frequencies LC Oscillator	: Three RF O/Ps in MHz
▪ Output Frequencies RC Oscillator	: Two Audio Frequency output in Hz.
▪ Output Frequency of Crystal Oscillator	: RF O/P 3.2768 MHz
▪ Max. Collector Emitter Voltage	: 12 VDC
▪ Weight	: 3.0 kg (approx)
▪ Dimensions (mm)	: L 444 x W 127 x H 539
▪ Interconnections	: 2mm Banana sockets
▪ Operating Temperature	: 0-50°C, 80% RH

### Learning Scope

- To Study operation of Hartley Oscillator Circuit.
- To Study operation of Colpitts Oscillator Circuit.
- To Study operation of RC Phase Shift Oscillator Circuit.
- To Study operation of Wein Bridge Oscillator Circuit.
- To Study operation of Crystal Oscillator Circuit.
- To Determine the Quiescent Operating Point of Transistor.
- To Observe & Note Change in Frequency of Oscillation w.r.t. change in feedback elements.
- Compare the Theoretical & Practical values.

**Other Instruments Required :** Digital Multimeter and Oscilloscope

**Accessories Included :** Set of Patch Cord and Details Instruction Manual.