



An ISO 9001:2015 Co.

## BJT Fixed Bias and Self Bias Circuit

### Model : SC-104

**SINCOM SC-104 BJT Fixed Bias and Self Bias circuit** is a **Two-In-One** simply designed trainer for the purpose to study BJT Fixed Bias and Self Base/Voltage Divide Bias method with and without Emitter Resistor and determine the various operational parameters with a wide range of components bank in a simple experimental way.

### Features

- ❖ User friendly Design
- ❖ Two-In-One base bias module
- ❖ Easy selection of Fixed Bias and Self Bias circuits
- ❖ One Silicon NPN BJT of TO-92 package on board
- ❖ NPN BJT with higher  $\beta$
- ❖ Combinational Resistor Bank at Base
- ❖ Resistor Bank at Emitter
- ❖ Resistive Collector Load
- ❖ In-Built Fixed regulated DC Power Supply
- ❖ Easy to select the different biasing resistors
- ❖ Facility to plot DC Load Line
- ❖ Very Easy for Operation
- ❖ Multi color Circuit Diagram is printed on the front panel of the board
- ❖ Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- ❖ Facility to connect external Digital/Analog Voltmeter and Ammeter or 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

▪ DC Power Supply	: IC Regulated Fixed +12V/500mA
▪ Biasing Method	: Fixed Bias and Self Bias with & without Emitter Feedback
▪ Transistor Type and Package	: BJT-Silicon-NPN, TO-92 Package
▪ Transistor Used	: One SL/CL100
▪ Transistor $\beta$	: @170-180
▪ Transistor Configuration	: CE mode
▪ BJT Junction Voltage	: 0.7V
▪ Max. Collector Emitter Voltage	: 12 VDC
▪ Combinational Base Resistor Bank	: Four- MFR 100K $\Omega$ , 180K $\Omega$ , 10K $\Omega$ and 100K $\Omega$ , $\pm 5\%$
▪ Emitter Resistor Bank	: Two- MFR 180 $\Omega$ and 0 $\Omega$ , $\pm 5\%$
▪ Collector Load	: 470 $\Omega$ Fixed Resistive Load
▪ AC Mains Power Supply	: 230V $\pm 10\%$ , 50Hz
▪ Weight	: 2.0 kg (approx)



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- Dimensions (mm) : L 220 x W 270 x H 110
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50°C, 80% RH

### Learning Scope

- To study BJT Fixed Bias circuit with & without Emitter feedback Resistor.
- To study BJT Self Bias/Voltage Divider biasing circuit. To observe & Note the change in Collector Current & Voltage w.r.t. change in biasing resistors.
- To Determine the various currents & voltages,  $I_B, I_C, V_B, V_C, V_{CE}, V_E$  and Stability factor
- To Plot DC load line & observe the change w.r.t. change in base resistor & emitter feedback resistor bank.

### Other Instruments Required

**SINCOM Digital Multi VI meter (DMVI) : Model DMVI-03** Range  $V_1$ -20V,  $I_1$ -20mA,  $V_2$ -20V,  $I_2$ -200mA DC

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