



An ISO 9001:2015 Co.

## To Study Load Line of BJT and Biasing

### Model : SC-106

**SINCOM SC-106 To Study Load Line of BJT** is remarkable simply designed trainer for the purpose to study setting up of a BJT DC load line and its effect on signal amplification 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
- ❖ One Silicon NPN BJT of TO-92 package on board
- ❖ NPN BJT with higher  $\beta$
- ❖ Combinational Resistor Bank at Base
- ❖ Resistor Bank at Emitter
- ❖ Variable Resistive Collector Load
- ❖ In-Built Fixed regulated DC Power Supply
- ❖ Easy to select the different biasing resistors
- ❖ Facility to change the Operating Point Q
- ❖ Facility to study the AF signal amplification and frequency response
- ❖ 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

▪ AC Mains Power Supply	: 230V $\pm$ 10%, 50Hz
▪ DC Power Supply	: IC Regulated Fixed +12V/500mA
▪ Biasing Method	: Voltage Divider/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
▪ Base Resistor Bank	: Four Base Resistors includes Two Fixed and Two Variable
▪ Fixed Base Resistor Bank	: Two Fixed-MFR 15K $\Omega$ & 3.9K $\Omega$ , $\pm$ 5%
▪ Variable Base Resistor Bank	: Two Variable 100K $\Omega$ Potentiometers
▪ Collector Resistor	: Fixed-MFR 3.3K $\Omega$ , $\pm$ 5%
▪ Output Load	: Variable 10K $\Omega$ Resistive Load



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|-------------------------|---|
| ▪ Emitter Resistor Bank | : Two- MFR 2.2K $\Omega$ and 0 $\Omega$ , $\pm 5\%$ |
| ▪ Weight                | : 2.0 kg (approx)                                   |
| ▪ Dimensions (mm)       | : L 220 x W 270 x H 110                             |
| ▪ Interconnections      | : 2mm Banana sockets                                |
| ▪ Operating Temperature | : 0-50 $^{\circ}$ C, 80% RH                         |

### Learning Scope

- 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 change w.r.t. change in Base resistor & Emitter feedback resistor bank.
- To study the effect on AF Output for the applied AF input by the change of load line.

### 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, Oscilloscope, Function Generator.

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