Voltage Regulator Trainer (BJT Shunt, Series & Zener Diode) with Digital Meter

Model : SB-111DM

SINCOM SB-111DM Voltage Regulator with Digital meters is **All-In-One** remarkable self contained simply designed trainer useful to study the operation, line and load regulation characteristics of BJT Shunt, BJT Series and Zener Shunt Voltage Regulator with variable load in a simple experimental way. This has separate modules of BJT Shunt, BJT Series and Zener Shunt voltage regulator circuits. The trainer is equipped with on board Digital voltmeter & Digital Ammeter.

Features

- ❖ User friendly Design
- ❖ Three Separate modules of BJT Shunt, BJT Series and Zener Shunt Voltage Regulator circuits
- ❖ For BJT Shunt-One Silicon NPN Transistors and Two Zener diode are provided as a controlling elements
- ❖ For BJT Series-Two Silicon NPN Transistors and One Zener diode are provided as a controlling elements
- ❖ For Zener Shunt- Two Zener diodes of different voltage ratings are provided
- ❖ Variable Regulated DC Output voltage
- ❖ Low forward voltage drop
- ❖ High operating Temperature range
- ❖ Variable Resistive Load
- ❖ Facility to vary wide range of applied DC Input voltage
- ❖ Facility to vary regulated Output DC Voltage
- ❖ In-Built Variable regulated DC Power Supply
- ❖ Very Easy for Operation
- ❖ Multi color Circuit Diagram printed on the front panel of the white board.
- ❖ Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- ❖ On Board $3^{1/2}$ Digit Digital Voltmeter and Ammeter
- ❖ 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 ±10%, 50Hz
- ▪ DC Power Supply   : IC Regulated Variable 0V to +12V/500mA
- ▪ Load Resistor   : 10KΩ Variable Resistive Load
- ▪ Regulation type   : Line and Load Regulation
- ▪ **For BJT Shunt Circuit**
  - • Unregulated DC Input Vin   : 0 to 12V DC Input
  - • Regulated DC Output Vo   : Two DC Outputs of 6.2V and 6.8V,±10%
  - • Output Voltage Control   : By Two Zener Diodes at sampling network
  - • Transistors Used   : One BJT NPN Silicon-BC548

- Zener Diodes Used : Two Zener diodes of 5.6V and 6.2V
- Forward Voltage Drop : 1.2V at T_A= 25^0c

- **For BJT Series Circuit**
  - Unregulated DC Input Vin : 0 to 12V DC Input
  - Regulated DC Output Vo : Variable @ 6V to 11V
  - Output Voltage Control : By 10KΩ Potentiometer at sampling network
  - Transistors Used : Two No-BJT NPN Silicon- SL100 and BC548
  - Forward Voltage Drop : 1.2V at T_A= 25^0c

- **For Zener Shunt Circuit**
  - Unregulated DC Input Vin : 0 to 12V DC Input
  - Regulated DC Output Vo : 6.2V and 6.8V DC ±10%
  - Zener Diodes Used : Two Nos.
  - Zener Voltage Vz : 6.2V and 6.8V, ±10%
  - Diode Package : DO-41 Tape and Reel type
  - Forward Voltage Drop : 1.2V at T_A= 25^0c
  - Current Controlling Resistor : MFR 470Ω, ±5% in series

- Total Digital Meters : 03 (2 Voltmeter and 1 Ammeter)
- Digital Voltmeter : 0-20V (2 No.)
- Digital Ammeter : 0-20mA (1No.)
- Meter Display : Red Color, $3^{1/2}$ Digit , LED Display
- Weight : 3.0 kg (approx)
- Dimensions (mm) : L 270 x W 390 x H 130
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50^0C, 80% RH

Learning Scope

- To Study operation of Shunt Voltage Regulator using Transistor.
- To Study operation of Series Voltage Regulator using Transistor.
- To Study operation of Zener Diode as a Shunt Voltage Regulator.
- To Study Change in O/P Voltage w.r.t. change in I/P Voltage with Load RL constant (Line Regulation)
- To Study Change in O/P Voltage w.r.t change in Load RL with I/P voltage constant (Load Regulation)

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

Subject to Change