

Order Code - 36197 "OP-AMP DESIGNER" has been designed specifically for the study of OP-AMP IC and its applications. This training board covers nearly all possible applications of operational amplifiers IC and makes the student familiar with the fundamentals of OP-AMPS, their characteristics and applications in various fields. 100 experiments can be performed by this OP-AMP designer.

Practical experience on this board carries great educative value for Science and Engineering Students.

LIST OF EXPERIMENTS

Following experiments can be performed :

01. BASIC OPERATIONAL AMPLIFIER CIRCUIT

01. Inverting Amplifier
02. Non-inverting Amplifier
03. Inverting A.C. Amplifier
04. Non-inverting A.C. Amplifier
05. High input impedance inverting Amplifier
06. High input impedance non-inverting amplifier

02. SOURCE FOLLOWERS

01. Voltage Follower (Unit gain buffer amplifier)
02. A.C. Voltage follower

03. OP- AMPS AS ANALOGUE COMPUTER ELEMENTS

01. Inverting summing amplifier
02. Non-inverting summing amplifier
03. Subtractor
04. Differential amplifier
05. A.C. differential amplifier
06. Adder subtractor
07. Multiplication by a constant
08. Division by a constant
09. Integrating amplifier for DC input signals
10. Integrating amplifier for AC input signals
11. Differentiator amplifier
12. Non-inverting differentiator

04. FUNCTION GENERATOR

01. Sine Wave generator using wien bridge network
02. Square Wave generator
03. Pulse generator
04. Square and Triangular wave generator
05. Saw tooth generator
06. Synchronised sawtooth generator with negative going pulse trigger
07. Synchronised sawtooth generator with positive going pulse trigger

05. MULTIVIBRATORS

01. Astable multivibrator
02. Monostable multivibrator
03. Bistable multivibrator

06. FILTERS

01. Low pass active filter
02. High pass active filter
03. Band pass active filter
04. Notch filter

07. VOLTAGE AND CURRENT REGULATOR

01. Basic reference voltage source
02. Basic reference voltage source with buffered output
03. Basic reference voltage source with negative output
04. Negative voltage reference source with buffered output
05. Positive regulator with variable buffered output
06. Negative regulator with variable buffered output



07. Buffered reference source
 08. Basic non-inverting voltage controlled current source
- #### 08. SIGN CHANGER
01. Sign changer with variable output
 02. Switch select sign changer
- #### 09. PHASE SHIFT CIRCUIT
01. Constant amplitude lag circuit
 02. Constant amplitude lead circuit
- #### 10. SIGNAL PROCESSING CIRCUITS
01. Diodes
 01. Precision Diode with +O/P
 02. Precision Diode with -O/P
 02. Rectifier
 01. Half wave rectifier
 02. Full wave rectifier
 03. Filtered full wave rectifier
 03. Detectors
 01. Peak detector
 02. Buffered peak detector
 03. Inverting peak detector
 04. Zero crossing detector
 05. Buffered zero crossing
 04. Clippers
 01. Positive peak clipper
 02. Negative peak clipper
 03. Self buffered series clipper
 04. Shunt clipper
 05. DC restorer
 05. Dead Band Response
 01. Feed back circuit with dead band response
 02. Variable dead band circuit
- #### 11. LIMITERS
01. General purpose unipolar limiter
 02. Bipolar zener limiter

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tesca.in

03. Input current limiter
04. Diode bridge limiter using one zener
05. Adjustable bipolar limiter
12. COMPARATORS
 01. Fast precision voltage comparator
 02. Single ended comparator with hysteresis & clamped feed back
 03. Comparator for signals of opposite polarity
 04. Comparator for A.C. coupled signals
13. INSTRUMENTATION AMPLIFIER
 01. Basic differential input instrumentation amplifier
 02. Instrumentation amplifier with high input impedance
14. OUTPUT DISPLAYS FOR COMPARATOR
 01. LED driver
 02. Lamp driver
15. METERING CIRCUITS
 01. D.C. voltmeter
 02. D.C. ammeter
 03. Resistance to voltage converter
16. LATCH UP PROTECTION
 01. Elimination of latch up
17. PUSH PULL CONVERSION
 01. Single ended to push pull conversion
18. MODULATION
 1. Pulse amplitude modulation
19. OFF-SET ADJUSTMENT IN OP-AMP CIRCUITS
 01. Internal off set Nulling
 01. For inverting amplifier
 02. For non-inverting amplifier
 03. For voltage follower
 02. Universal External off set Nulling
 01. Inverting amplifier offset voltage applied to the inverting input
 02. Inverting amplifier offset voltage applied to the noninverting input
 03. Off-setting circuit for low gain non-inverting amplifier
 04. Off-setting circuit for high gain non-inverting amplifier
 05. Off-setting circuit for voltage follower
 03. Other types of off-setting arrangements
 01. Zero off-setting
 02. Zero off-setting buffer
20. MEASUREMENT OF OP-AMP PARAMETERS
 01. Measurement of closed loop gain
 02. Measurement of closed loop-r (inverting mode) .
 03. Measurement of closed loop-r (non-inverting mode) .
 04. Measurement of O/P resistance (closed loop)
 05. Measurement of Band width of ac amplifier
 06. Input off-set voltage
 07. Input bias current
 08. Input off-set current

FEATURES

The board consists of the following built-in parts:

01. IC Regulated D.C. Power Supply.
02. Continuously variable D.C. Power Supply.
03. Two OP-Amp IC.
04. Transistor, 5 diodes, 2 zener diodes, 28 resistors, 8 capacitors, one LED, one lamp.
05. Mains ON/OFF switch, fuse and Neon Indicator are provided.

GENERAL FEATURES

- The unit is operative on 230V, 50Hz A.C.
- Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length ½ metre.
- Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections/ observation of waveforms.
- Strongly Supported by Detailed operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.

OTHER APPARATUS REQUIRED

- Sine Square Wave Oscillator
- Digital Multimeter 3¾ digit
- A.C. Millivoltmeter
- Cathode Ray Oscilloscope 20MHz

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tesca.in