



OMEGA TYPE OAD-14 "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.

OBJECTS:

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

CONTINUE..2

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.

OMEGA ELECTRONICS

Works:

28E & F, Malviya Industrial Area,
Jaipur-302 017 (INDIA)
Phone: 0141-2751559

E-mail : info@omegaelectronics.net
: omegajipur62@gmail.com

www.omegaelectronics.net

Marketing Division:

B-28, Fateh Singh Scheme, Opp. Rajputana
Palace Sheraton, Jaipur-302006 (INDIA)
Phone : 091-141-2375647, 2379223

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
- 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

- 01 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 non-inverting 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_{in} (inverting mode)

03 Measurement of closed loop- r_{in} (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

01 The unit is operative on 230V, 50Hz A.C.

02 Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length 50cm.

03 Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections/observation of waveforms.

04 Strongly Supported by Detailed operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.

05 Weight : 5 Kg. (Approx)

06 Dimension : W 415 x H 165 x D 315 (mm)

OTHER APPARATUS REQUIRED (Not Included):

01 Sine Square Wave Oscillator OMEGA TYPE SS-305

02 Digital Multimeter 3¼ digit OMEGA TYPE DMM-201

03 A.C. Millivoltmeter OMEGA TYPE ACV-25

04 Cathode Ray Oscilloscope 20MHz

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.

OMEGA ELECTRONICS

Works:

28E & F, Malviya Industrial Area,
Jaipur-302 017 (INDIA)
Phone: 0141-2751559

E-mail : info@omegaelectronics.net
: omegajipur62@gmail.com

www.omegaelectronics.net

Marketing Division:

B-28, Fateh Singh Scheme, Opp. Rajputana
Palace Sheraton, Jaipur-302006 (INDIA)
Phone : 091-141-2375647, 2379223