

**Product Name :**

Laser Diode Intensity Modulation and Demodulation Trainer

**Product Code :**

ALABS-A41-001

**Description :****Laser Diode Intensity Modulation and Demodulation Trainer**

has been developed to conduct studies on laser Diode, optical fibres and optical communication methods, by signal transmission. Practical experience on this Trainer carries great educative value for Science & Engineering Students.

**Experiments:****Characterisation of a Laser Diode :**

- Optical Power ( $P_o$ ) of a Laser Diode Vs Laser Diode Forward current ( $I$ ).F
- Monitor Photodiode Current ( $I$ ) Vs Laser Optical Power Output ( $P_o$ ). M

**Design and Evaluation of an Laser Diode (LD) Analog I System M :**

- $V_o$  Vs  $V_{in}$  at Specified Optical Carrier Power Levels,  $P_o$

- Determination of  $V_{in}$  (max) at Specified  $P_o$  for Distortion-free  $V_o$

#### **Design and Evaluation of Laser Diode LD Digital Transmission System :**

- Risetime and Falltime Pulse width Distortions and Determination of Propagation Delay

#### **Transmission of Laser through an Optical Fibre :**

- To measure loss in dB of Step-index Multimode plastic Fibre Patchcord
- To measure loss in dB of Graded-Index, Multimode Glass Fibre Patchcord
- To measure loss in dB of Two Patchcords connected by the in-line Adaptor

#### **Laser Free Space Communication :**

- Analogue Free Space Communication System
- Digital Free Space Communication System

#### **Determination of Numerical Aperture of PMMA Fibre Cable**

#### **The Trainer consists of the following built-in parts:**

#### **Laser Diode Transmitter unit having following built-in parts :**

- Laser Diode Transmitter Module
- 6V DC at 100mA, IC Regulated Power Supply internally connected
- SPDT switch to select Automatic Current Control (ACC) or Automatic Power Control (APC)
- Potentiometer to set power output
- Adequate no. of other electronic components
- Mains ON/OFF switch, Fuse and Jewel light

**Laser Diode Receiver unit having following built-in parts :**

- Laser Diode Receiver Module
- PIN Diode for measuring power of Laser Diode
- Potentiometer to set voltage output
- Adequate no.of other Electronic Components
- 6V DC at 100mA, IC Regulated Power Supply internally connected

**Special Feature :**

- Two-metres PMMA Plastic Fibre Patchcord (Cable-1)
- Two-metres GI/mm Glass Fibre Patchcord (Cable-2)
- In-line SMA Adaptor
- Numerical Aperature measurement Jig
- Mandrel
- The units are operative on 230V  $\pm$ 10% at 50Hz A.C. Mains
- Adequate no. of Patch cords stackable 4mm spring loaded plug length  $\frac{1}{2}$  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
- Weight : 4 Kg. (Approx)
- Dimension : W 340 x H 110 x D 210

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