



Local Area Network (LAN) Trainer provides the understanding of all the fundamentals of networking. It helps the user to gain knowledge regarding all network layers, cable designing and building of complete network of computers. The user can understand and actually implement various topologies using different standards given by IEEE. Actual connections can be made in different topologies and data can be transferred. The user will understand the protocols, topologies used in networking, measurement of error rate, throughput and effect of errors on protocols. The versatile software provided with assist the user to observe the various effects and configurations on network along with the graphical representation.

- PC to PC communication with IEEE 802.3
- Peer to Peer network
- Client - Server network
- Design of Star topology using 100Base-Tx
- Design of Bus topology using 10Base-2
- Design of Ring topology using DB9
- Creation of cables for network connections
- Network design using RJ45, BNC & DB9 connectors
- Socket programming and processing
- Data Encryption and Decryption
- Various LAN Protocols
- Data rate up to 100Mbps
- Variable packet size
- Variable packet delay
- Error generation (Manual and Auto)
- Real time graphical representation of entire transmission & reception
- User friendly software
- Switch faults in both hardware & software
- Exhaustive course material & references.

Technical Specifications

Hardware:

PC to PC using RJ-45 Connector
Star topology using RJ45 Connector
Bus topology using BNC Connector
Ring topology using DB9 Connector
Data transmission speed: 10/100 Mbps
4 Nodes

Software:

Star, Bus & Ring selection

Protocols: CSMA/CD, CSMA/CA, Stop N Wait, Go back to N, Selective

repeat, Sliding Window, Token Bus, Token Ring

Packet size: 128, 256, 512, 1024, 2048, 4096, 8192, 16384

Inter Packet delay: 1000 - 5000 ms

Error generation: Acknowledgment lost, bad packet, auto error generation

Data encryption & decryption

Complete analysis of Network & Protocols

Graphical Representation:

Graphic representation of data on s/w screen with packet details

Network details:

Indication of computer name, IP address, Port number, status of network, MAC address and OS on computer.

Network & protocol analysis :

Indication of packet serial number, file name, file size, file number, receiver name, Workgroup, receiver IP address, total packets, packet length, time out, protocol, topology, receiver, MAC address, port number, file send start time, file sent completion time, transmission time data rate (Mbps), error.

Power Supply : 220 V \pm 10%, 50 Hz / 60 Hz on request

Power Consumption : 1.8 VA (approx.)

Dimensions (mm) : W 370 \times H 265 \times D 125

Experiments that can be performed

- Study & implementation of cable designs in networking
- Implementation of PC to PC with IEEE 802.3
- Implementation of Star topology using 100BaseTx
- Implementation of Bus topology using 10Base2
- Implementation of Ring topology using DB9
- Implementation of Peer to Peer network
- Implementation of Client- Server network
- Study of protocols
 - CSMA/CD
 - CSMA/CA
- Study of flow control
 - Stop-N-wait
 - Sliding window
 - Go back to N
 - Selective repeat
- Token ring
- Token bus
- Measurement of throughput & effect of bit errors on various protocols
- Socket programming
- Study of wireless LAN

Note: Specifications are subject to change.

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