

FIBER OPTICS

LINK-B ADVANCE FIBER OPTIC COMMUNICATION TRAINER KIT



LINK-B is an advance trainer kit designed to learn the communication techniques & applications of fiber optic cable in digital voice communication including the fundamentals of fiber optics.

FEATURES:

- Fiber Optic Transmitter : 2 Wavelengths.(660nm & 950 nm)
- Fiber Optic Receiver: 2 types. (PIN Photo Diode, Photo Transistor detector).
- N. A. Measurement.
- Fiber Optic Analog Link.
- Fiber Optic Digital Link.
- Pulse Code Modulation using CODEC Chip.
- Manchester Coding/ Decoding.
- 16-Channels Time Division Multiplexing.
- Two 8-Bit Marker.
- Channel Indication.
- Bit Indication.
- Noise Source.
- Bit Error Rate Measurement.
- PRBS Generator.
- Eye Pattern.
- Voice Communication.
- PC-to-PC communication using RS-232 Interface.
- Switch Faults.

TECHNICAL SPECIFICATIONS:

Transmitter	: 2 Nos. Siemens Fiber Optic LED.
Wavelength	: 950 nm, 660 nm
Receiver	: 2 Nos. Siemens Fiber Optic Photo Detector.
	Photo Diode with responsivity of 80 mA/mW,
	Photo Detector with TTL logic output.

Modulation Techniques :

Pulse Code Modulation (PCM) using Motorola MC 145502 CODEC Chip.

Coding/ Decoding : Manchester Coding/ Decoding Technique.

Noise Generator : White Noise Source

Amplitude : 0 to 5Vpp.

PRBS generator : 16 Bit switch selectable.

Clock : 32, 64, 128 KHz.

Bit Error Rate Measurement:

10 bit counter with LED indication, upto 255 counts.

Multiplexing : Time Division Multiplexing,
16 Channels (64 Kbits/Sec).

Frame Marker : Two 8-bit user selectable markers in
alternate frames.

Data Rate : 1.024 MBits/Sec.

Voice PCM : 2-channels Voice PCM with Telephone Hand
sets (A Law).

Analog Bandwidth : 300KHz.

FWHM Spectral Width : 100 nm.

PC To PC Communication:

- i) PC-to-PC Communication using 660 nm & 950 nm LED using RS-232
- ii) Baud Rate : Maximum 115.2 Kbps

FIBER OPTIC CABLE:

- i) Type : 1000 micron Step Index, Multimode Plastic Fiber
- ii) Fiber Lengths : 1 & 3 Meters.

SWITCH FAULTS: 8 Switch Faults are provided on board to study different effects on circuit.

TEST POINTS: 45 Nos. Test points are provided on board to observe intermediate signals.

Interconnections : 2mm Banana Sockets.

Power Supply : GND, +5V, +12V, -12V.

LIST OF EXPERIMENTS:

- Setting up a Fiber Optic Analog Link.
- Setting up a Fiber Optic Digital Link.
- Measurement of Losses in Optical Fiber :
 - Measurement of Propagation Loss.
 - Measurement of Bending Loss.
- Measurement of Numerical Aperture.
- Characteristics study of LEDs & Photo detectors.
- Study of Time Division Multiplexing using 16 data channels.
- Study of Framing in Synchronous Time Division Multiplexing.
- Study of Marker in Time Division Multiplexing.
- Measurement of Bit Error Rate.
- Study of Eye Pattern.
- Study of Manchester coding and decoding.
- Study of PCM coding and frequency response of a CODEC chip.
- Forming PC-to-PC Communication Link using Optical Fiber and RS-232 Interface
- Effects of Switch Faults.

ACCESSORIES:

FIBER OPTICS

Red Short Links	: 10 Nos.
Red Long Links	: 02 Nos.
Crocodile Links	: 02 Nos.
Jumper to Crocodile	: 04 Nos.
Extra Jumper Caps	: 05 Nos.
N.A. Jig & Steel Ruler	: 01 No. each.
Fiber Cable	: 01 & 03 Meter.
Telephone Handset	: 02 Nos.
RS-232 Cable	: 02 Nos.
Experimental Manual	: 01 No.
Circuit Description Manual	: 01 No.
Power Supply	: 01 No.

OPTIONAL:

FG-02: Function Generator.

e-Manual Interactive Multimedia Software & Manual



FALCON

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