Order Code - 28510A
Optical Fiber Communication A
(Bit Error Rate, Eye Pattern)

Features

- Simplex Analog and Digital Transreceiver
- 660 nm channel with Transmitter & Receiver
- AM-FM-PWM modulation / demodulation
- On board Function Generator
- On board Clock & Data Generator
- On board Bit Error Counter
- Crystal controlled Clock
- Functional blocks indicated on-board mimic
- Input-output & test points provided on board
- On board voice link
- Built in DC Power Supply
- Numerical Aperture measurement jig and mandrel for bending loss measurement
- Switched faults on Transmitter & Receiver

Technical Specifications

Transmitter	: 1 no., Fiber Optic LED having peak wavelength of emission 660 nm
Receiver	: 1 no., Fiber Optic Photodetector
Modulation Techniques	: 1. AM 2. FM 3. PWM
Drivers	: 1 no. with Analog & Digital modes
Clock	: Crystal controlled Clock 4.096 MHz
PLL Detector	: 1 no.
AC Amplifier	: 1 no.
Comparator	: 1 no.
Filters	: 1 no. 4th order Butterworth, 3.4 KHz cut-off frequency
Analog Band Width	: 350 KHz
Digital Band Width	: 2.5 MHz
Function Generator	: 1 KHz Sine wave (Amplitude adjustable) 1 KHz Square wave (TTL)
Clock Generator	: 64 KHz/128 KHz/256 KHz (TTL)
Data Generator	: 15 Bit
Noise Generator	: Variable level
Bit Error Counter	: 4 digits, 7 segment display
Voice Link	: F. O. voice link using microphone & speaker (built in)
Switched Faults	: 4 in Transmitter & 4 in Receiver
Fiber Optic Cable	: Connector type Standard SMA
Cable Type	: Step indexed multimode PMMA plastic cable
Core Refractive Index	: 1.492
Clad Refractive Index	: 1.406

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension, Jaipur-302022, Rajasthan, India,
Mob./Whatsapp: +91-9829132777; Email: info@tesca.in, Website: www.tescaglobal.com

Numerical Aperture	: Better than 0.5
Acceptance Angle	: Better than 60 deg.
Fiber Diameter	: 1000 microns
Outer Diameter	: 2.2 mm
Fiber Length	: 0.5 m & 1 m
Test Points	: 34 nos
Inter connections	: 2 mm sockets
Dimensions (mm)	: W 326 × D 252 × H 52
Weight	: 1 Kg approximately
Operating conditions	: 0-40 C, 80% RH
Power Supply	: 110-220 V, ±10%, 50/60 Hz
Power Consumption	: 3 VA approximately
Included Accessories	: NA Measurement jig, Mandrel, Fiber cables, Microphone, Headphone, Set of Patch cords
Optional Accessories	: Optical Power Meter, 5 meter fiber cable, 10 meter fiber cable.

Experiments

- Setting up Fiber Optic Analog & Digital Link
- AM system using Analog & Digital Input Signals
- Frequency Modulation System
- Pulse Width Modulation System
- Study of Propagation Loss in Optical Fiber
- Study of Bending Loss
- Measurement of Numerical Aperture
- Characteristics of Fiber Optic Communication Link
- Setting of Fiber Optic Voice Link using AM, FM & PWM
- Study of switched faults in AM, FM & PWM System
- Propagation loss using Optical Power Meter
- V-I Characteristics of LED (E - O converter)
- Characteristics of Photo Detector
- Effect of EMI on Optical Communication
- Measurement of Bit Error Rate
- Study of Eye Pattern

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