Specifications

Transmitter : Two Siemens fiber optics LED
Transmitter 01 : Peak wavelength of emission 660nm red visible (SFH756V)
Transmitter 02 : Peak wavelength of emission 950nm (SFH450V)
Receiver : Two fiber optic photo detector
Receiver 01 : PIN photo diode with responsivity of 0.3 µA (SFH250V)
Receiver 02 : Photo Detector with TTL Logic output (SFH551V)
On-Board Signals
  • SineWave
- Frequency : 1Hz ~ 10KHz
- Amplitude : 0 ~ 4 Vpp
  • TTL-Square Wave
- Frequency : 1Hz ~ 10KHz
Modulation techniques
- Direct intensity modulation - Frequency modulation
- Pulse width modulation (PWM) (with variable clock 4 K z, 8 KHz, 16 KHz, and 32 K z)
- Pulse position modulation (PPM) (with variable clock 4KHz, 8 KHz, 16 KHz, and 32 K z)
Driver Circuit
  • Analog and digital configuration for 660 nm and 950 nm LED
Analog/digital bandwidth
  • 2MHz / 5MHz
Filter circuit
  • 4 order Butter worth filters with 3.4 KHz cut-off frequency
Voice Communication
  • Fiber optic voice link using dynamic mike and speaker
PC TO PC Communication
  • PC to PC communication using 660 nm and 950 nm LED through RS-232 standard
RS-232 Port type
  • Two 9 pin D type connector
Baud rate
  • Maximum 115.2 kbps baud
Fiber optic cable
  • Type : Plastic optical cable, step index, multimode
Core Refractive
  • Index-n1 : 1.492
  • Numerical aperture : 0.5

Note: Specifications are subject to change.

- Acceptance angle   : 60o
- Outer diameter   : 2.2 mm
- Fiber lengths   : 1 and 3 Meters

Switch Faults
- 8 Switch faults are provided on board to study different effects on circuit

Test Points
- 24 test points are provided on board to observe intermediate signals

Power supply
- GND, +5V, +12V, -12V

Experiments

- Settingupa fiber optic analog Link
- Study of losses in optical fiber:
- Measurementofpropagation lossandbending loss
- Study of characteristics of fiber opticLEDand detector
- Measurement of numerical aperture
- Study of frequency modulation and demodulation using fiber optic link
- Setting up a fiber optic digital link
- Study of modulation and demodulation of light source by pulse width modulation(PWM)techniques
- Study of modulation and demodulation of light source by pulse position modulation (PPM)techniques.
- Forming PC to PC communication link using optical fiber and RS-2 32 interface.
- Setting up a fiber optic voice link
- Switch faults

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