

## KL-900D

### FIBER-OPTIC TRANSMISSION TRAINING SYSTEM



Fiber optic communication is one of the most popular technologies in the modern days due to its high transfer speed and large capacity. KL-900D uses fiber optic as a transmission media for the whole experiment. With four different data transmission ways (self module transmission, module-to-module transmission, PC-to-module transmission, and module-to-PC transmissions) and various different modulation / demodulation methods (CVSD, FSK, etc.) introduced in the training system, users can obtain a very clear view of how Fiber-optic transmission works.

#### Specifications

##### 1. Power : AC-DC Adapter

- (1) AC Input : 100 ~ 240V
- (2) DC Output : 15V, 500mA

##### 2. Microphone Circuit :

- (1) Frequency range : 20Hz ~ 12KHz
- (2) With gain 20 amplified circuit

##### 3. Push-button Switch :

- (1) N.O. Type
- (2) With LED indication

##### 4. Function generator :

- (1) Output sine wave with adjustable output amplitude
- (2) Output square wave, with CMOS level
- (3) Frequency range : 6Hz ~ 2KHz

##### 5. Output Speaker :

- (1) 8Ω, 1/4W

##### 6. Transmitter :

- (1) Optical fiber light : Red LED,  $\lambda = 660\text{nm}$
- (2) Max. drive current : 50mA
- (3) Effective coupling micro-lens spotlight
- (4) Emitter follower

##### 7. Receiver :

- (1) Optical receiving diode :
  - a.  $\lambda$  peak : 880nm
  - b. Connectable 1000 $\mu\text{m}$  Core plastic optical fiber

c. Effective coupling micro-lens spotlight

d. Max. consumption power : 100mW

(2) With amplified, gain, restoring-sharpness circuit

##### 8. Data transmission elements :

- (1) Chip set : AVR8515, 8bits, 8MHz Crystal
- (2) LCD : back-light 20 x 2 letter chip
- (3) Keyboard : 4 x 4 16Key
- (4) Character mode : single letter or string letter available
- (5) Send mode : OFF, Transceiver, PC→Module, Module→PC
- (6) With reset function
- (7) Communication interface : RS-232C, 9600 Baud Rate
- (8) Software environment : Windows base

#### Experiment Modules

- 1. 2mm connection leads are used throughout the system
- 2. The building blocks and components symbols of the circuits are printed on the surface of each module.
- 3. Modules are secured in plastic housings (255 x 165 x 30mm  $\pm 10\%$ )
- 4. Comprehensive experimental manual
- 5. Use bridge plugs on circuit loop to reduce the possibility of errors.

### **List Of Experiment**

1. Characteristic of fiber optics experiment
2. Applications of fiber optics experiment
3. Light sources of fiber optics
4. Light and fiber optics interaction experiment
5. Fiber optic transmitters experiment
6. Receivers for fiber optic system experiment
7. Fiber optic expand and network experiment
8. Fiber optic connectors and lose-polishing experiment
9. Fiber optical data-transmission-self-transceiver experiment
10. Fiber optical data-transmission-double-transceiver experiment
11. Fiber optical data-transmission - PC→Module experiment
12. Fiber optical data-transmission - Module→PC experiment
13. Fiber optical data-transmission - CVSD modulation & demodulation experiment (optional)
14. Fiber optical data-transmission - ASK modulation & demodulation experiment (optional)
15. Fiber optical data-transmission - PSK/QPSK modulation & demodulation experiment (optional)

### **Accessories**

1. 2mm-2mm test-lead 1 set
2. Plastic fiber optics 1 set
3. Experiment manual
4. 9P-9P cable
5. Transceiver software disk
6. AC-DC adapter power module
7. Connection plug pitch = 10mm
8. Headphone and microphone

### **Option Modules**

1. KL-92001 Power supply and function generator
2. KL-94004 CVSD modulation & demodulation
3. KL-94005 ASK amplitude shift modulation & demodulation
4. KL-94006 PSK/QPSK modulation
5. KL-94007 PSK/QPSK demodulation