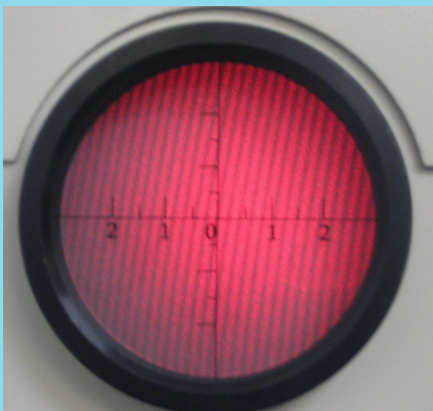


## LEOK-20 Optical Fiber Information and Communication Experiment Kit - Basic Model

- 8 fundamental experiments
- Flexible solution for different levels of students
- Hands-on skill training
- Innovative design with quality components



Interference pattern on ground glass screen

This kit provides an overview of fiber optic technology and basic skills needed to work with fiber optics. It is made up of a number of laboratory experiments. The most commonly used fiber optical components and their parameter measurements are introduced in this kit. Upon completing the experiments, one can gain a better understanding of fiber optic fundamentals with hands-on experience in real fiber optic components and techniques. With this carefully designed kit, students will gain a powerful tool to explore the exciting world of fiber communication. This kit is really a must for those wishing to learn fiber optics with related techniques.

## Experimental Contents

- 1) Experiment of fundamental knowledge of optical fiber optics
- 2) Experiment of coupling method between optical fiber and light source
- 3) Multimode fiber Numerical Aperture (NA) measurement
- 4) Optical fiber transmission loss property and measurement
- 5) M-Z optical fiber interference experiment
- 6) Optical fiber thermal sensing principle
- 7) Optical fiber pressure sensing principle
- 8) Visual inspection and fault locating using OTDR

## Part List

Description	Part No./Specs	Qty
He-Ne laser	LLL-2 (2.0 mW@632.8 nm)	1
Light power meter	LLM-2	1
Fiber interference demonstrator	Includes following parts:	1
<i>Fiber splitter</i>	<i>633 nm</i>	<i>1</i>
<i>Temperature controller</i>		<i>1</i>
<i>Stress controller</i>		<i>1</i>
<i>5-axis adjustable stage</i>		<i>1</i>
<i>Beam expander</i>	<i>f = 4.5 mm</i>	<i>1</i>
<i>Fiber clip</i>		<i>2</i>
<i>Fiber support</i>		<i>1</i>
<i>White screen</i>	<i>With crosshairs</i>	<i>1</i>
<i>Laser holder</i>	<i>SZ-42</i>	<i>1</i>
<i>Alignment aperture</i>		<i>1</i>
Power cord		3
Single-mode fiber	633 nm (FC/PC connector on one end, 1 m)	1
Multi-mode fiber	633 nm (2 m)	1
Fiber patch cord	9/125 $\mu$ m single mode (FC/FC, 50 m)	1
Fiber spool	1 km (9/125 $\mu$ m bare fiber)	1
Hand held OTDR with VFL	OTDR: 1550 nm, VFL: 1 mW, 650 nm	1
Fiber stripper		1
Mating sleeve		1
Fiber scribe		1

## He-Ne Laser with Power Supply

Model: Lambda Scientific LLL-2

Wavelength: 632.8 nm

Mode & output power: TEM<sub>00</sub> ≥ 2.0 mW

Polarization: Linear polarization 500:1

Beam divergence: 1.3 mrad full angle

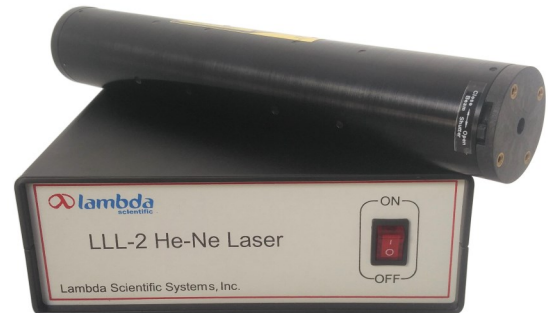
Beam diameter: 0.63 mm at 1/e<sup>2</sup> point

Tube: length 270 mm and diameter 42 mm

High voltage: 1900 VDC/6.5mA, Alden HV connector

Power supply: 100—240 VAC, 50/60 Hz

Dimensions: 190mm x 80mm x 160mm.



## Light Power Meter

Model: Lambda Scientific LLM-2

Measurement range: 2 μW ~ 200 mW, 6 scales

Display: 4-digi LED display

Sensor type: silicon detector (300 ~ 1100 nm)

Sensor area: 10mm x 10mm

Power supply: 100—240 VAC, 50/60 Hz

Dimensions: 250mm x 200mm x 90mm

## Fiber Interference Demonstrator

Dimensions 350 x 300 x 210 mm. Includes following parts:

- (1) 633 nm fiber beam splitter with FC input connector
- (2) 20W heater with temperature sensor
- (3) mounted collimating reflective mirror f175mm
- (4) 15 mm travel at 0.01 mm resolution micrometer
- (5) diameter 60mm ground glass viewing screen
- (6) 80mm x 80mm with cross scales white screen
- (7) alignment aperture
- (8) fiber holders
- (9) fiber coupling objective lens 5x
- (10) PID temperature controller
- (11) x-y translation stage
- (12) x-y-z translation stage
- (13) Power supply: 100—240 VAC, 50/60 Hz



## Fiber Stripper

For stripping 125μm fiber with 250μm buffer coating

## Fiber Spool

Operating wavelength: 1310/1550 nm  
 Length: 1000 m  
 Connector type: bare fiber, no connector  
 Core diameter: 9  $\mu\text{m}$   
 Cladding diameter: 125  $\mu\text{m}$



## Single-mode Fiber (633 nm)

Operating wavelength: 633 nm  
 Length: 1m  
 Connector type: FC/PC, one end only  
 Core diameter: 4.3  $\mu\text{m}$   
 Cladding diameter: 125  $\mu\text{m}$   
 Coating diameter: 250  $\mu\text{m}$   
 Numerical aperture: 0.10-0.14,  
 Cutoff wavelength: 500-600 nm.



## Multi-mode Fiber (633 nm)

Operating wavelength: 633 nm  
 Length: 2m  
 Connector type: FC/PC, both ends  
 Core diameter: 9  $\mu\text{m}$   
 Cladding diameter: 125  $\mu\text{m}$   
 Insertion loss: <0.3 dB  
 Return loss: >50 dB



## Fiber Patch Cord

9/125  $\mu\text{m}$ , single mode, 1310/1550 nm  
 Length: 50 m  
 Connector type: FC/PC, both ends

## Fiber Scribe

Tip material: carbide  
 Tip angle: 45°



## Hand Held OTDR with VFL



Hand held optical time domain reflectometer (OTDR):

Single mode fiber, FC/PC, light source 1550 nm, dynamic range 18 dB,  
 Measurement range 40 km, pulse width 10 ns ~ 10  $\mu\text{s}$ , attenuation dead zone  
 10 m, event dead zone 3 m. Sampling points 40000. Data storage 50.

Visual Fault Locator (VFL): Light source 1 mW 650 nm.

Powered by Li rechargeable battery. Type-C USB charger.

Dimensions: 175 mm x 90 mm x 45 mm.