

OPTICAL FIBER THEORY SET

N99-D20-1614



Manual of Operations

IMPORTANT!

Read the following before using this equipment:

Carefully follow all instructions and observe all precautions given in this manual



LOOK US UP ONLINE

Version2.1.SA100914

Purpose:

Optical fibers are made of quartz or plastic with good transmissivity. Light incident on one end of the transparent fiber is reflected successively and transmitted at the other end.

The optical fiber in this set is made of transparent acrylic resin mixed with fine aluminum powder and it allows the course of the laser beam that passes through it to be observed. You can observe the status of transmission of the visible laser beam incident at one end of the fiber and repeatedly reflected until it reaches the other end.

Specifications:

Body: Made of special plastic with acrylic resin (2 types)
Outer dimensions: 1. Straight bar type 20mm x 20mm x 195mm
2. S-shaped bar 20mm x 20mm x 200mm

Other apparatus used in common:

Visible laser source
(Cat. No. D20-1103 ~ 6 Semiconductor Laser)

Experimental method:

1. If a visible laser beam is emitted at one end of the straight bar, it is reflected repeatedly in this bar until it reaches the other end. If you change the angle of incidence, the number of repeated reflections also changes. Beams that exceed the critical angle of incidence will be radiated outside the bar (see dotted line).
2. The same results will be obtained if you perform the experiment using the S-shaped type bar. The results show that light is transmitted even if the optical fiber has bends in it.



Caution: If you use a visible laser beam, you can clearly observe the path of the beam in the medium, but if you use a semiconductor laser with wavelengths of about 670nm, the visibility is poor. Therefore, darken the room and observe the course of the beam.