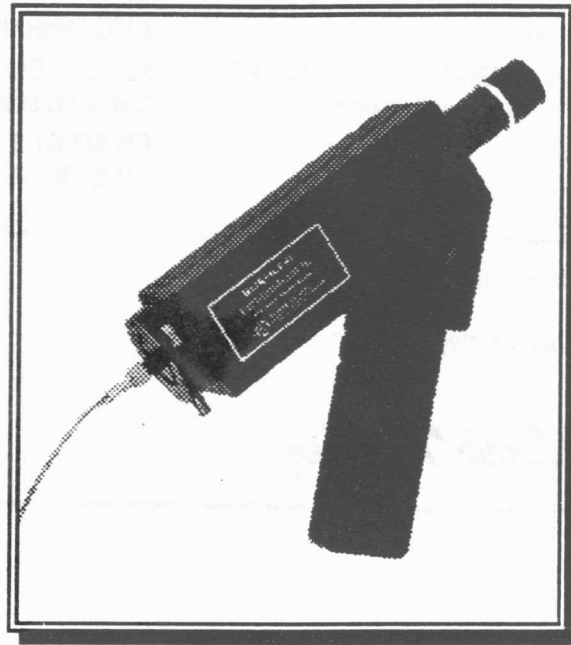




**FIBRSKOPE®**  
**Portable Microscope**



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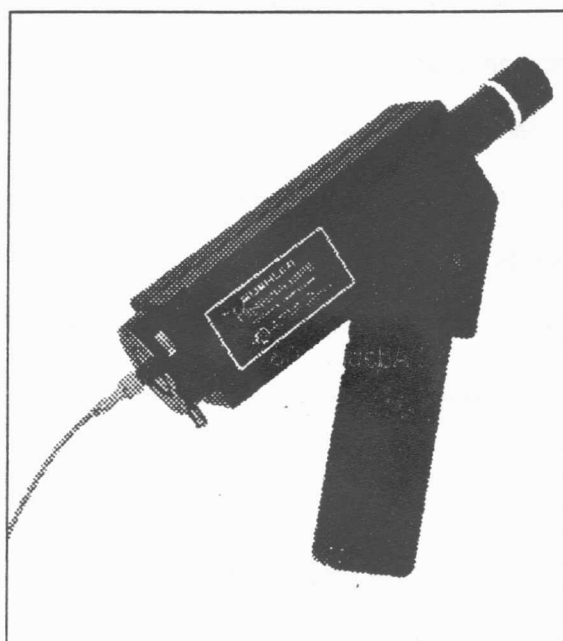
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# Operation and Maintenance Instructions

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**BUEHLER®**

## **FIBRSKOPE®** **Portable Microscope**



*Figure 1: FIBRSKOPE Portable Microscope*

**No. 0801-0500 FIBRSKOPE® Portable Microscope**, 200x magnification 0815-0200 10x widefield eyepiece, with durable plastic housing, KG3 filter, fine focus, bulb, and batteries. Includes four standard adapters: 0810-0203 SMA 905/906, 0810-0213 FC, 0810-0247 ST and 0810-0248 SC.

**No. 0801-0502 FIBRSKOPE® Portable Microscope**, same as 0801-0500 except 400x magnification with 0815-0202 20x widefield eyepiece

**No. 0801-0504 FIBRSKOPE® Portable Microscope**, same as 0801-0500 except with 200x - 400x magnification with 0815-0204 10x - 20x zoom eyepiece

## Warranty

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This unit is guaranteed against defective material and workmanship for a period of two (2) years from the date of receipt by customer. The warranty is void if inspection shows evidence of abuse, misuse or unauthorized repair. Warranty covers only replacement of defective materials. If, for any reason, this unit must be returned Buehler for warranty service, please apply for prior authorization with shipping instructions, and include the following information: customer purchase order number, Buehler invoice number and date, serial number, and reason for return.

## Unpacking

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Carefully unpack and check contents. If any components are missing or damaged, save the packing list and material and advise Buehler of the discrepancy. Located within the convenient carrying case are the following items:

1. 1 Replacement Bulb (0818-0110)
2. 50 Sheets Lens Cleaning Tissue (1522-0500)
3. 1 SMA 905/906 Adapter (0810-0203)
4. 1 FC Adapter (0810-0213)
5. 1 ST Adapter (0810-0247)
6. 1 SC Adapter (0810-0248)
7. 2 Batteries, 1.5V, Type AA (1325-0250)  
*Shipped in the FIBRSKOPE*
8. 1 Instruction Manual

## Assembly

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The FIBRSKOPE Portable Microscope is shipped in a lightweight carrying case designed to protect and hold the instrument and all accessories necessary for operation. All of the standard accessories, including the manual are shipped inside the carrying case. The batteries are shipped in the FIBRSKOPE.

# Operation



## **Viewing of laser-activated fiber cable may cause eye damage.**

Before viewing any optical fiber, make sure that the other end of the fiber is not connected to a laser. The infrared light transmitted by lasers is not visible to the human eye, and can cause eye damage if not properly filtered.

Select the appropriate adapter for the fiber optic connector to be inspected and attach the connector to the adapter (see figure 3). Insert the adapter (1) by firmly pushing it into the adapter-ring (2) until it clicks-in and is seated against the adapter-ring face.

Use alcohol and a clean cotton wipe to ensure the connector and ferrule are cleaned thoroughly. Carefully insert the connector into the adapter on the FIBRSKOPE.

While looking through the eyepiece (3) illuminate the fiber optic end by depressing the button (4) on the handle of the FIBRSKOPE. The image can be brought into focus by turning the focusing adjustment knob (5). Once the focus has been set only minor adjustment should be required when changing connectors. To move or center the fiber, adjust the X and Y cams (6) using your thumb and forefinger.

**NOTE:** The image will appear slightly bluish in color due to a laser light filter built into the FIBRSKOPE for protection of the operator.

The built-in illumination system provides through-the-lens vertical illumination of the fiber optic end. Simultaneous vertical and back illumination (light transmitted through the fiber) is possible by using the unique mirror-like plate\* (7) attached to the right side of the FIBRSKOPE body. This simultaneous illumination is achieved by depressing the button (4) while holding the other end of the fiber perpendicular to the mirror like plate. When the fiber is held against the mirror surface, the light coming from the illuminator travels through the fiber, reflects off the mirror surface, then travels back through the fiber to the FIBRSKOPE objective and eyepiece - thus providing simultaneous vertical and back illumination.

\*U.S. Patent 4,671,629

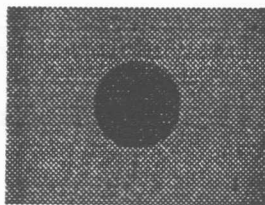


Figure 2: Typical 9 micron finish at 200x

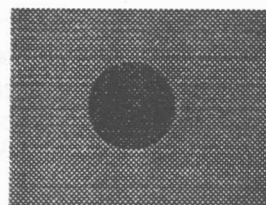


Figure 3: Typical 3 micron finish at 200x

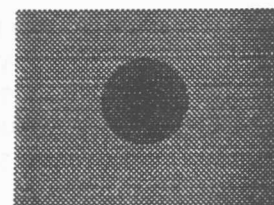


Figure 4: Typical 0.5 micron finish at 200x

## Maintenance

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The eyepiece and objective lens are coated with an antireflective layer and should only be cleaned with lens cleaning tissue and lens cleaning fluid. Vigorous rubbing or the use of a cloth may damage this coating.

The bulb has a rated minimum life of 100 hours. At the time of failure it may be replaced by the following procedure: remove the screws on the side cover (8), pull the bulb holder (9) outward, and remove the bulb (10) by turning it in a counterclockwise direction. When replacing the bulb, lens tissue should be used to grasp the bulb. Dirt or finger prints on the surface of the bulb will significantly reduce its life expectancy.

The FIBRSKOPE Portable Microscope illuminator is powered by two AA batteries (11) which will provide a minimum of 4 hours of intermittent use. The batteries can be accessed by removing the screw and lifting the cover plate (12) from the handle.

The FIBRSKOPE illuminator can also be powered by an AC adapter. An access port for the AC adapter is included on the FIBRSKOPE. Use of this adapter permits the user to bypass the battery and use the unit for extended periods of time without replacing batteries.

## Magnification Chart

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Cat No.	Mag.	Eyepiece	Obj. Lens	Field of View
0801-0500	200x	10x	20x	0.0393" (1.0mm)
0801-0502	400x	20x	20x	0.0019" (0.5mm)
0801-0504	200x-400x	10x-20x	20x	0.0393" (1.0mm)

## Optical Density (O.D.)

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Wavelength (n.m.)	Minimum Acceptable Value (O.D.)	Attenuation (dB)
850	4.5	45
1300	4.5	45
1500	2.0	20

# Parts List - FIBRSKOPE®

Details of design subject to change without notice

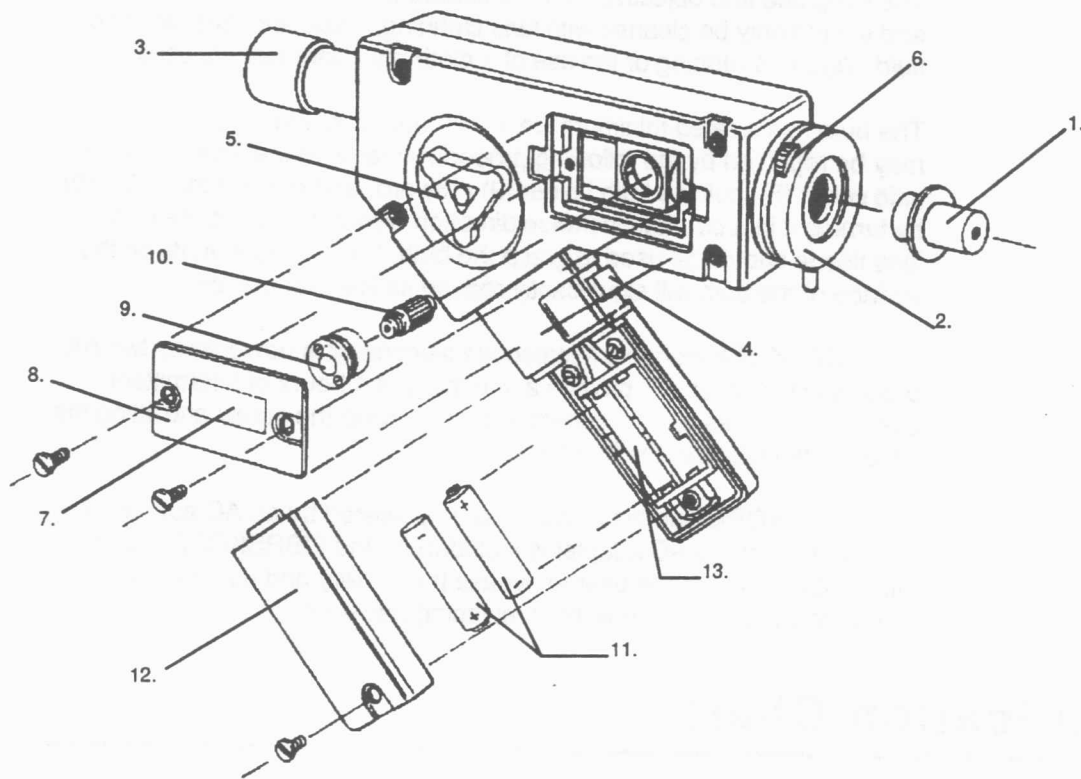


Figure 5: FIBRSKOPE Part List

Ref. No	Part No.	No. Req.	Description
1.	0810-0204	1 ea.	Adapter
2.	0820-0202	1 ea.	Adapter Ring
3.	0815-0200	1 ea.	Eyepiece, 10x
	0815-0202	1 ea.	Eyepiece, 20x
	0815-0204	1 ea.	Eyepiece, 10x - 20x Zoom
4.	0820-0203	1 ea.	Illuminator Button
5.	0820-0201	1 ea.	Focusing Adjustment Knob
6.	0820-0202	1 ea.	Fiber Alignment Cam
7.		1 ea.	Mirror Plate
8.		1 ea.	Side Cover
9.		1 ea.	Bulb Holder
10.	0818-0110	1 ea.	Bulb
11.	1325-0250	1 pr.	Batteries, 1.5V, Type AA
12.		1 ea.	Handle Cover
13.	0820-0204	1 ea.	Battery Holder

# Accessories

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Part No.	Description
0815-0200	Eyepiece, 10x
0815-0202	Eyepiece, 20x
0815-0204	Eyepiece, 10x - 20x Zoom
0818-0110	Replacement Bulb
0820-0107	Reticle Adapter, 21mm for 20x Eyepiece
0822-0110	FIBRSKOPE Portable Microscope Stand
0822-0120	AC Adapter
1325-0250	Batteries, 1.5V, Type AA (2 each)
1522-0500	Lens Cleaning Tissue, 4" x 6", 50 sheets
3000-S253	Lens Fluid Cleaner

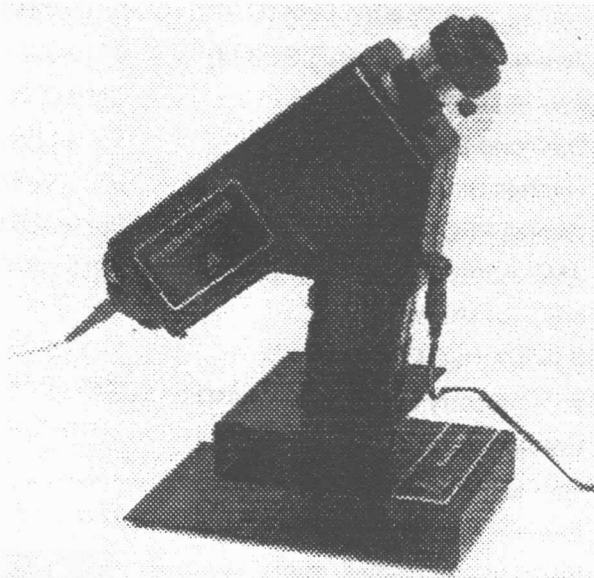


Figure 6: FIBRSKOPE with Stand and AC Adapter



# Adapters

## Adapter # Connector Type

0810-0201 Weco/Dorran (SS)  
 0810-0202 Hewlett-Packard SMA (RR)  
**0810-0203\* Amphenol SMA 905/906 (MM)**  
 0810-0204 Blank  
 0810-0205 ITT OCN101 (AA)  
 0810-0206 Stratos Series 430 (BB)  
 0810-0207 Plessey Plug (KK5)  
 0810-0209 Plessey, "Taplow" (EE)  
 0810-0210 Hellermann-Deutsch Klinlok (FF)  
 0810-0211 Leetec SER FL4000 Plug (GG)  
**0810-0213\* Seiko Sap 2 Plug/NTT FC (JJ)**  
 0810-0215 Souriau 8016 (LL)  
 0810-0216 Diamond HFS-2 (NN)  
 0810-0217 Hughes Single Pin (LL5)  
 0810-0219 Radiall PFO (PP5)  
 0810-0220 AMP Adapter-Tapered (PPP)  
 0810-0221 NEC D4 (BB5)  
 0810-0222 AT&T Array (CC5)  
 0810-0223 AT&T Rotary Splice and ST (DD5)  
 0810-0224 Cannon LL Bayonet Plug (TT)  
 0810-0225 Cannon LL Bayonet (UU)  
 0810-0226 Leetec Coupler 4AFL 4000 (VV)  
 0810-0227 Belling Lee / Radiall 7mm (WW)  
 0810-0228 AMP Bayonet Style (XX)  
 0810-0229 Ameeco FFF JB 250 (YY)  
 0810-0231 NMI (ZZ)  
 0810-0232 Interoptics Series 3 Ferrule (AA5)  
 0810-0233 NSG No. W18 (EE5)  
 0810-0234 NSG No. W10 (FF5)  
 0810-0237 Biconic Plugs (GG5)  
 0810-0239 Biconic 1006 Male (HH5)  
 0810-0240 ITT Pins & Sockets (JJ5)  
 0810-0242 Italian Sirti (MM5)  
 0810-0243 Sumitomo Mini-BNC (NN5)  
 0810-0244 Bendix Pins & Sockets

## Adapter # Connector Type

0810-0245 German Post (UU5)  
 0810-0246 Fully Assembled D4 (VV5)  
**0810-0247\* ST Bayonet Style (YY5)**  
**0810-0248\* SC**  
 0810-0249 Bare Fiber (Single Piece)  
 0810-0250 FDDI Dual Ferrule (200x Model)  
 0810-0251 Escon Male (200x Model)  
 0810-9003 AT&T Array (CC5)  
 0810-0252 SC APC (200x Model)  
 0810-0253 SC APC (400x & Zoom Models)  
 0810-0254 FC APC (200x Model)  
 0810-0255 FC APC (400x & Zoom Models)  
 0810-0256 E2000 (200x Model)  
 0810-0257 E2000 (400x & Zoom Models)  
 0810-0258 E2000 APC (200x Model)  
 0810-0259 E2000 APC(400x & Zoom Models)  
 0810-0260 MT-RJ (200x Model)  
 0810-0262 LC & MU (200x Model)  
 0810-0263 LC & MU (400x & Zoom Models)

\* Included with each FIBRSKOPE Portable Microscope

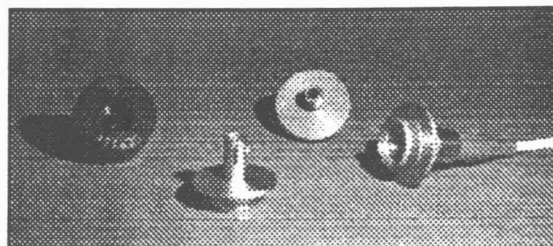


Figure 7: Pictured from right to left are the 0810-0248 SC, 0810-0247 ST, 0810-0203 SMA and 0810-0213 FC connector adapters.

# BUERHLER®

## FIBRSKOPE® PORTABLE MICROSCOPE

INSTRUCTIONS UNDER  
FOAM IN LID

FC AND FC/PC TYPE



SMA TYPE I & II



AMP ADAPTER-TAPERED



SS  
WESTERN ELECTRIC/DORRAN

