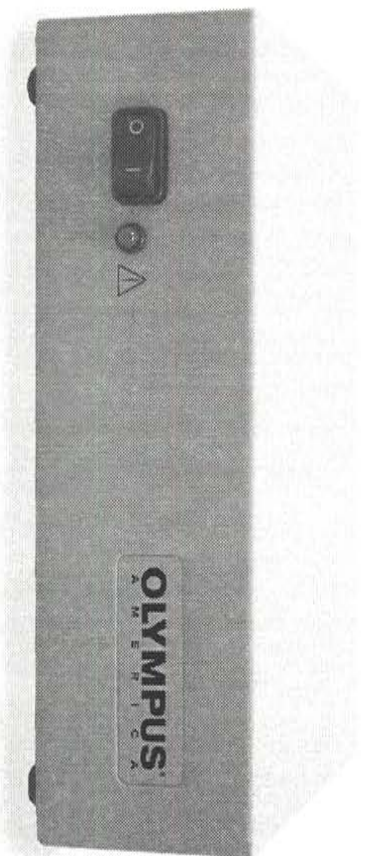
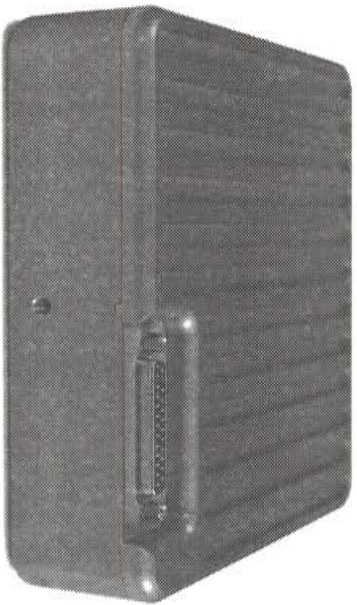


OLYMPUS
A M E R I C A

**Instruction manual
MagnaFire SP – Model S99810**





Important information for users of OLYMPUS instruments

Thank you for your expression of confidence in the OLYMPUS brand name. Like all of our other products, this product is the result of years of experience and great care in manufacture. You and your organization have decided in favor of a modern, high quality, item of equipment from OLYMPUS.

This instruction manual is intended to serve as an aid in the proper setup, installation, and operation of the MagnaFire SP. All essential details of the equipment and all actions required on your part are clearly presented and explained. We ask that you read this manual carefully before proceeding to work with the equipment. Keep it available for ready reference in a convenient and conspicuous location near the equipment.

Warnings and cautions

Please read this manual and follow its instructions carefully. The words **WARNING**, **CAUTION**, and **NOTE** convey special meanings. When they are used throughout this manual, they should be carefully reviewed to ensure the safe and effective operation of this product.

WARNING A **WARNING** indicates that the personal safety of the user may be involved. Disregarding a **WARNING** could result in injury to the user.

CAUTION A **CAUTION** indicates that particular service procedures or precautions must be followed to avoid possible damage to the product.

NOTE A **NOTE** indicates special information to improve the ease of maintaining the product, or to clarify important information.



The symbol of an exclamation mark within a triangle is intended to alert the user to the presence of important operating and maintenance instructions in the product's accompanying documents.

WARNING Read this instruction manual thoroughly and be familiar with its contents prior to using this equipment. Read the entire instruction manual before assembling or hooking up the camera system.

WARNING The electrical installation of the relevant location must comply with the applicable IEC, CEC, and NEC requirements.

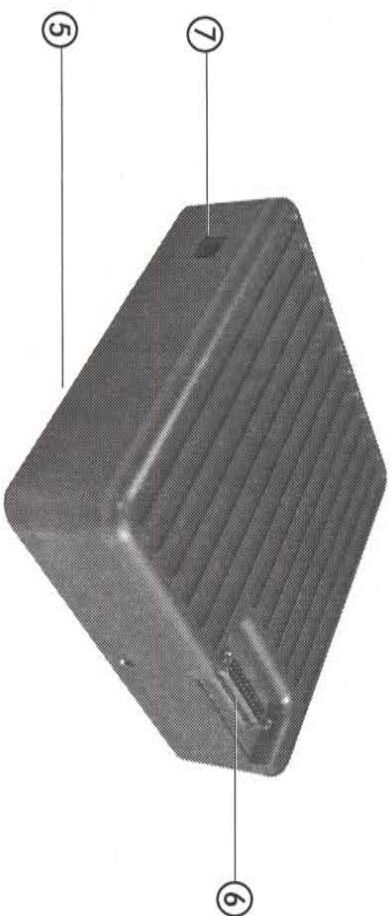
CAUTION To reduce the risk of electrical shock, do not remove cover of equipment. Refer all servicing to qualified personnel. Removal of covers by unauthorized personnel will void the equipment's warranty.

CAUTION Refer to Instruction Manual for proper cleaning instructions. Do not sterilize this product.

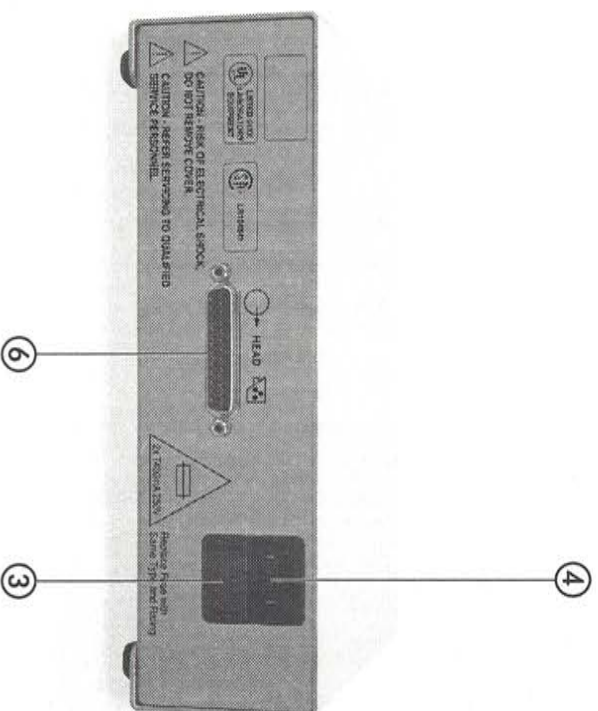
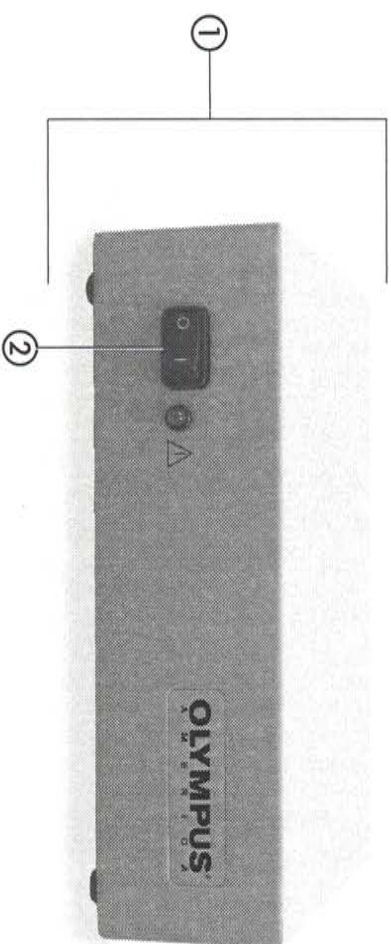
CAUTION Do not store liquids above unit.

NOTE Follow local governing ordinances and recycling plans regarding disposal or recycling of device components.

Operating elements, displays, connections and their uses



- ① Power supply
- ② Power switch
- ③ Power fuses
- ④ Power supply cord receptacle
- ⑤ MagnaFire SP camera head
- ⑥ Camera head cable receptacle
- ⑦ IEEE 1394 high speed serial bus cable connector receptacle



Symbols employed



Read the instructions carefully before operating the equipment



Power on



Power off



CAUTION: To reduce the risk of electrical shock, do not remove cover.
Refer servicing to qualified service personnel.



Protective earth (ground)



Alternating current



Replace fuse with T400mA, 250V, 5 x 20mm fuse, IEC 127 - II

Contents

Warnings and cautions (3)
Operating elements, displays, connectors and their uses (4)
Symbols employed (5)

Safety instructions

Normal use (7)

Installation and operating instructions

Unpacking the equipment (8)
Basic equipment (8)
Installing the MagnaFire SP (9)
System configuration (12)

Description of the instrument

Fuse replacement (13)
Cleaning and storage after use (14)
Maintenance operation (14)
Service (15)
Warranty (15)

Technical description

Troubleshooting (16)
Technical data (19)
Declaration of conformity (20)

Safety Instructions

Please read these safety instructions carefully before using the instrument.

Normal use

The MagnaFire SP is a digital camera for attaching to microscopes. Use of the instrument in fields other than that indicated above is not allowed for safety reasons.

The MagnaFire SP may only be used with accessories and items which have been designated by Olympus as suitable for the instrument or the safe use of which is proven.

Unauthorized conversions or modifications to the instrument are not allowed for safety reasons and will void all warranties.

Installation and operating instructions

Unpacking the instrument

Carefully unpack the MagnaFire SP and remove the unit and its accessories from their packaging. Check for missing items and evidence of shipping damage.

File any complaints with the manufacturer or supplier immediately.

If possible, retain the original packing materials for later use; these can come in handy when the unit must be transported.

Basic equipment

- 1 Camera head
- 1 Power supply
- 1 Camera cable
- 1 Power cord
- 1 IEEE 1394 high speed serial bus cable
- 1 Instruction manual
- 1 Operating software

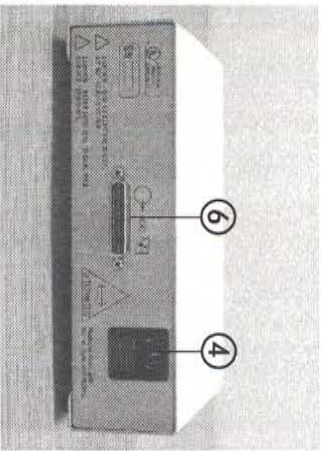
Installation and operating instructions

Installing the MagnaFire SP

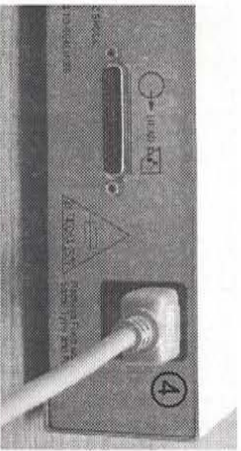
Set the power supply on a flat surface.

Make sure there is sufficient distance on all sides from other equipment and objects where specified.

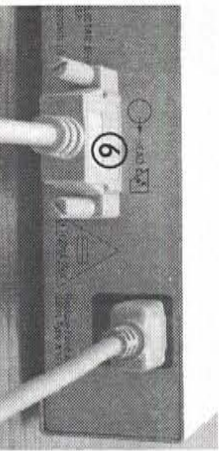
Before plugging in the equipment, make sure that the voltage on the nameplate corresponds to the voltage of the local power line.



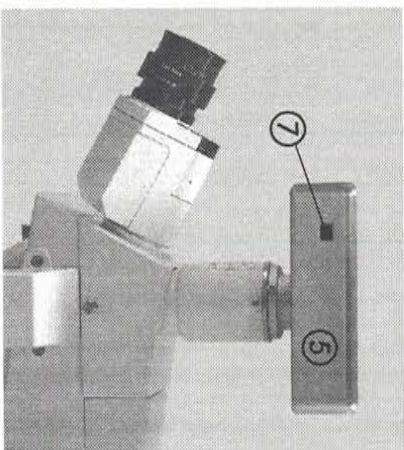
Connect power cord. Insert power cord into power cord receptacle (4) as far as it will go.



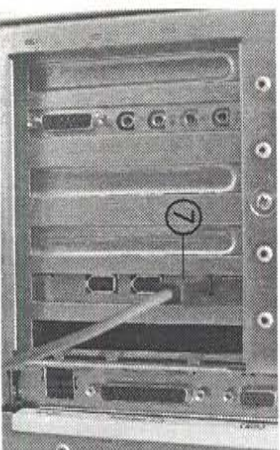
Plug camera head connector into receptacle (6) and secure with integral fasteners.



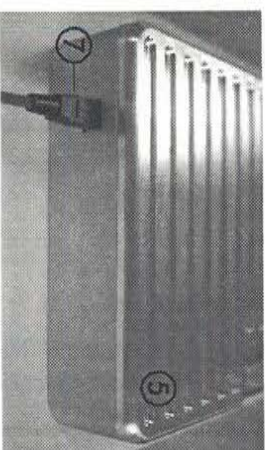
Installation and operating instructions



Attach the camera head ⑤ to the microscope, threading clockwise until hand-tight.

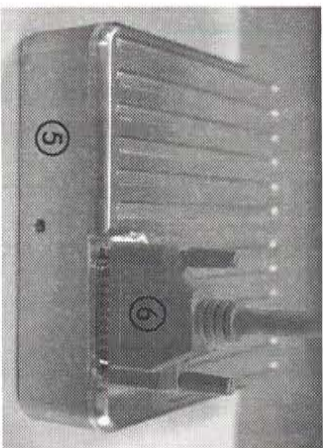


Connect the camera head ⑤ to the computer. This connection can be made using the IEEE 1394 high speed serial bus cable ⑦.

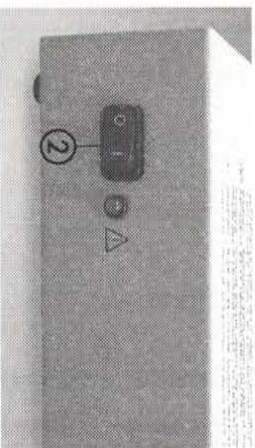


Installation and operating instructions

Attach 25-pin camera cable ⑥ from the power supply ① to the camera ⑤. Be sure to tighten down screws.



Plug power cord into A.C. outlet. Switch on the power supply ② and the computer. Install software per instructions on disc.

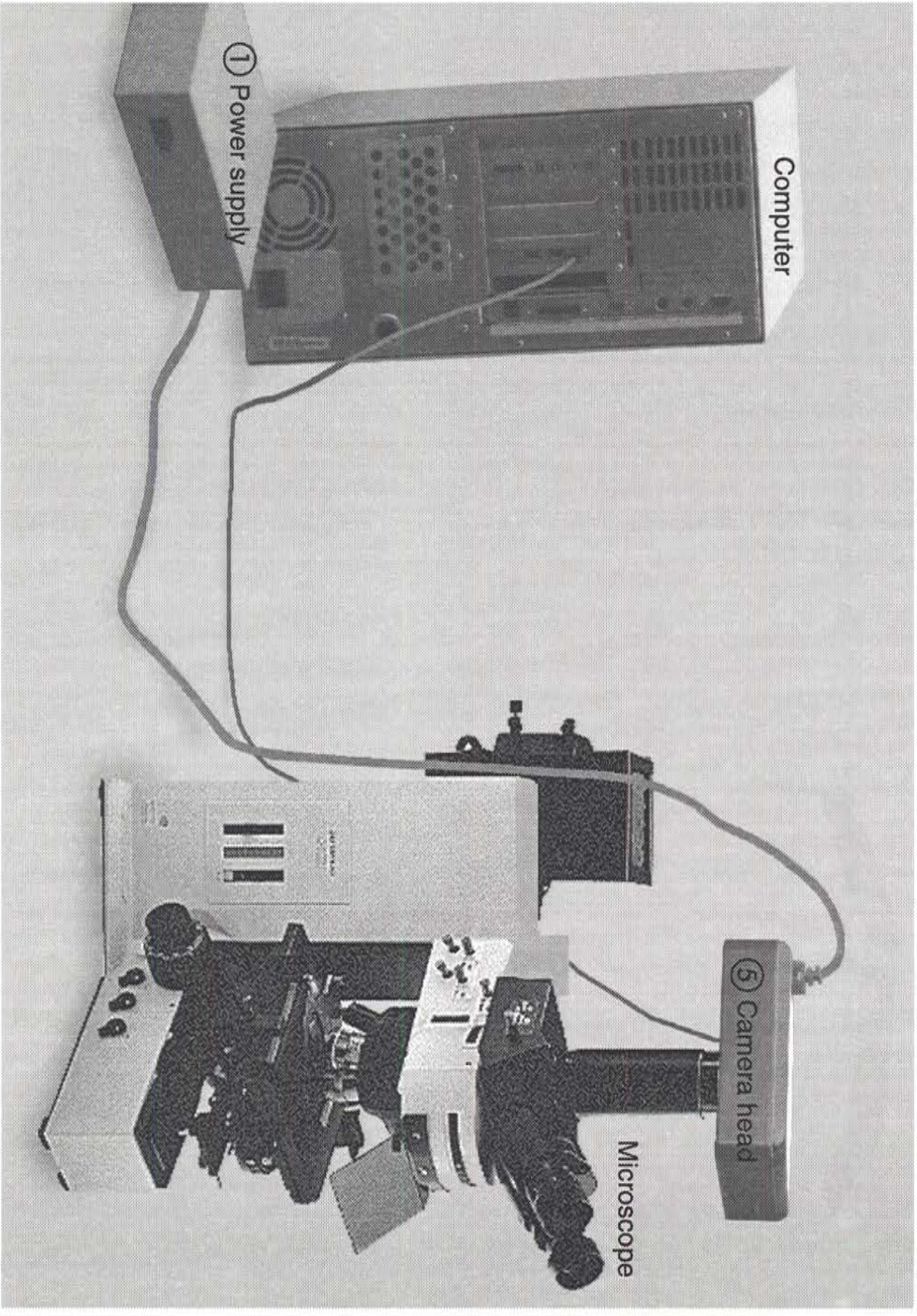


All camera functions are controlled from the application software. Refer to User Guide IM-70-164-XX.

Installation and operating instructions

System configuration

- MagnaFire SP camera head ⑤
- Power supply ①
- Computer



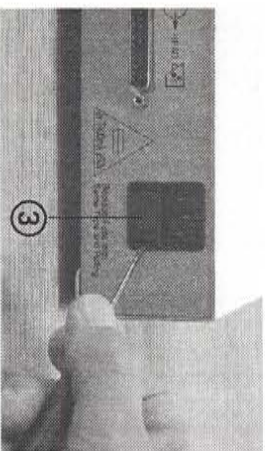
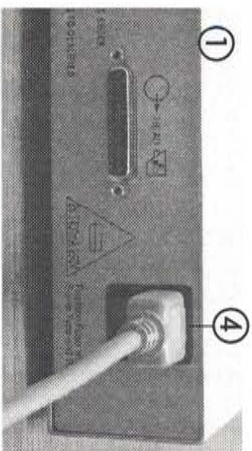
Description of the instrument

Fuse replacement

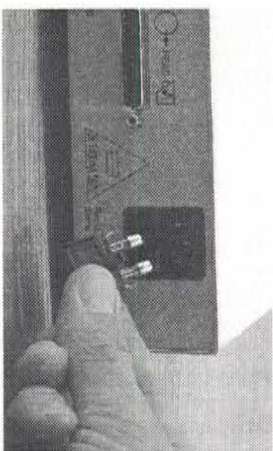
Switch off the power supply ① and remove the power plug from the electrical outlet and power cord receptacle ④.



CAUTION: Use only fuses approved to IEC 127 Sheet II, Type T for replacement.



Remove the power fuse holder ③ with a screwdriver or other tool.



Insert new fuses of the appropriate type and rating.

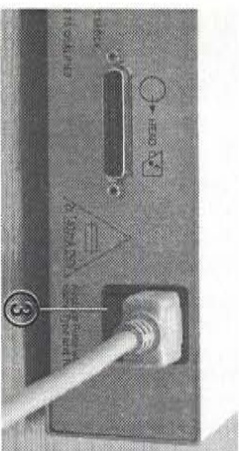
Caution: Only use fuses of the correct type and rating.

Power fuses	2 x T1400mA / 250V
-------------	--------------------

Replace and tighten the caps of the fuse holder ③.

Reconnect the power cord.

Test the power supply for proper operation.



Description of the instrument

Cleaning and storage after use

Camera head

1. Clean the camera head with a damp cloth.
2. Dry thoroughly with a soft towel.
3. Replace the camera head into its box. Do not coil the camera cable tightly.

Power supply

1. Clean the power supply with a damp cloth.
2. Dry thoroughly with a soft towel.
3. Replace the power supply into its box.



CAUTION: Do not store the camera in direct sunlight or excessive heat.

Maintenance operations

Performance of preventive maintenance is not essential. Regular maintenance can, however, contribute to identifying potential problems before they become serious, thus enhancing the instrument's reliability and extending its useful operating life. Maintenance services can be obtained from your local representative or from the manufacturer.

Information on maintenance contracts can be obtained from the manufacturer (see warranty information on page 15).



WARNING: To ensure safe operation of the camera, you should perform the following procedures every 12 months:

1. Check leakage current from chassis $\leq 95\mu\text{A}$.
2. Check ground impedance < 0.1 ohms.
3. Check power consumption \leq rated power.

Description of the instrument

Service

Refer all servicing and adjustments to qualified service personnel. DO NOT open camera head or power supply as this will result in damage and VOIDING OF WARRANTY.

Warranty

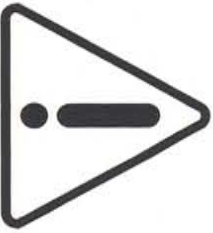
The cameras are covered by a one year warranty applicable from the date of sale against defects in materials and workmanship or malfunctions under normal use and service. This warranty does not apply to any unit which has been subject to misuse, abuse, neglect, improper installation or operation or that has been altered, adjusted, or tampered with by any person other than authorized service personnel.

Should a malfunction occur, the unit must be returned to **Olympus** or to its authorized representative. Before returning the unit, the customer must first call **Olympus** to obtain a "Return Materials Authorization" number. **Olympus** will repair the unit and return it to the customer.

If, upon examination by authorized service personnel, it is determined that the malfunction is due to misuse or abuse, warranty provisions will not apply. An estimate of the cost of repair work will be given to the customer prior to servicing and repairing the unit.

Olympus is responsible for the effects on safety, reliability and performance of the equipment only if it is serviced by authorized personnel and used in accordance with the Operating Manual Instructions.

If the equipment is used in a manner not specified by **Olympus**, the protection provided by the equipment may be impaired.



Information and technical service

516-844-5000

Technical description

Troubleshooting

Symptom:

No image — power light off.

Possible causes/remedy:

- Power cord is not properly connected to power cord connector.
- Power supply not plugged in.
- Defective power fuse.
- Push power cord firmly into power cord connector.
- Check that there is electricity to the wall outlet.
- Check that power supply switch is turned on.
- Exchange fuses.

Symptom:

No image — power light on.

Possible causes/remedy:

- Check that computer is plugged in and turned on.
- Plug in computer and turn on.
- Check that IEEE 1394 high speed serial bus cable from camera to computer is connected.
- Check that camera head is plugged in to power supply.
- Check that microscope light source is on.
- Check that the Firewire card is properly seated.

Symptom:

Intermittent image.

Possible causes/remedy:

- Check all connections: camera head cable to computer.
- Try to isolate problem by finding one component that works and testing all other components with it.
- Check that the Firewire card is properly seated.

Symptom:

Bad color.

Possible causes/remedy:

- Repeat the white balance procedure with correct illumination, with complete system hooked up, pointing the camera at a white object.
- Check that power supply is in a cool, well-ventilated area.

Technical description

Symptom:
Occasional image.

Possible causes/Remedy:

- Check that parallel cable connectors are inserted completely into the power supply and camera head.
- Check that the Firewire card is properly seated.

Symptom:
Disturbance or interference.

Possible causes/Remedy:

- Check if interference changes when the parallel cable is wiggled. If so, refer to Service and Warranty for information on how to return a malfunctioning unit.
- Try a different electrical outlet, preferably with no other equipment plugged into it.
- Check that the Firewire card is properly seated.

Symptom:
Grainy or noisy image.

Possible causes/Remedy:

- Increase intensity of light source.

Symptom:
Spots on image.

Possible causes/Remedy:

- Clean optical surfaces of camera head and microscope.

Symptom:
Picture too dark or too bright.

Possible causes/Remedy:

- Adjust level of light source.

Symptom:
General.

Possible causes/Remedy:

- Try to isolate problem equipment (computer, firewire card, peripheral software, etc.) before returning camera for abnormal image (noise, interference, bad color, etc.).
- If the camera does seem to be the problem, refer to Service and Warranty for information on how to return a malfunctioning unit.
- Print an image of the problem and include the print when returning the equipment for repair. Do not attempt to repair equipment. There are no user-serviceable parts inside the camera.

Symptom:
Foggy image.

Possible causes/Remedy:

- Moisture condensed on optical elements.
- Allow camera to reach ambient room temperature prior to turning on.

Technical description

General classification

Type of protection against moisture: Ordinary

Type of protection against electric shocks: Protection Class 1

Mode of operation: Continuous

Laboratory classification

Mains supply voltage fluctuation: $\pm 10\%$

Installation overvoltage category II

Pollution degree: 2

Equipment test certificates

Instruments are manufactured and labeled in accordance with UL 3101, CSA 22.2 NO. 1010-1.

Technical documentation

On request, the manufacturer will provide those circuit diagrams, itemized parts listings, descriptions, sets of adjustment instructions, and other items of available documentation to suitably qualified user personnel duly authorized by the manufacturer for their use in repairing those components of the instrument that have been designated by their respective manufacturers as repairable.

Supply of such technical documentation relating to the instrument shall not be construed as constituting manufacturer's authorization of user's personnel, regardless of their levels of technical training, to open or repair the instrument. Explicitly exempted herefrom are those maintenance and repair operations described in this manual.

Technical description

Technical data for MagnaFire SP model S99810

Image sensor: Sony ICX085AK Color CCD

Picture format: 1300 (H) x 1030 (V) active pixels

Active area: 8.7 mm x 6.9 mm (2/3 inch format)

Spectral response: 400 nm - 950 nm, 10% peak response

Peak spectral response: 520 nm

Pixel size: 6.7 μ x 6.7 μ

Instrument coupling: "C" mount (1" x 32), 17.5 mm backfocus

Input: parallel port - 25-pin

Output: IEEE 1394 Firewire

Fuse: 2 x T400mA, 250V

Power requirements: 100 - 240V~, 50/60 Hz

Camera head: Dimensions (L x W x H): 6.5 x 6.5 x 1.8 in., Weight: 3.3 lbs.

Power supply: Dimensions (L x W x H): 8.4 x 6.1 x 2.5 in., Weight: 3.8 lbs.

Storage conditions: Ambient temperature: -10° to +60° C (14° to +140° F), Humidity: 0 to 80% (non-condensing), Atmospheric pressure: 50 kPa to 106 kPa

Operating conditions: Indoor use maximum altitude: 2,000 m, Temperature range: +5° to +35° C (+41° to +95° F), Humidity: 0 to 80% (non-condensing), Mains supply voltage fluctuation \pm 10%, Installation overvoltage category II, Pollution degree: 2

Computer requirements: 300MHz Pentium PC running Windows 98/2000, 128mb RAM, hard drive, 8mb video memory, OHCI-compliant IEEE 1394 port or vacant PCI slot

OLYMPUS
A M E R I C A

OLYMPUS

Olympus America
2 Corporate Center Drive
Melville, NY 11747
(516) 844-5000