



Instruction Manual

**ELTROTEC Endolight FOT Halogen 100**

Halogen light source

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Certified acc. to DIN EN ISO 9001: 2008

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# Contents

<b>1.</b>	<b>Safety .....</b>	<b>5</b>
1.1	Symbols Used .....	5
1.2	Warnings .....	5
1.3	Notes on CE Identification .....	6
1.4	Proper Use .....	7
1.5	Proper Environment .....	7
<b>2.</b>	<b>Functional Principle, Technical Data .....</b>	<b>8</b>
2.1	Short Description .....	8
2.2	Technical Data .....	8
<b>3.</b>	<b>Delivery .....</b>	<b>9</b>
3.1	Unpacking .....	9
3.2	Storage .....	9
<b>4.</b>	<b>Mounting .....</b>	<b>10</b>
4.1	Light Source .....	10
4.2	Control Elements .....	11
<b>5.</b>	<b>Operation .....</b>	<b>12</b>
5.1	Getting Ready for Operation .....	12
5.2	Commissioning .....	12
5.3	Adjust the Input Voltage 110 / 230 V .....	14
5.4	Fuse Replacement .....	15
5.5	Changing the Lamp .....	16
<b>6.</b>	<b>Instructions for Operation .....</b>	<b>18</b>
6.1	General .....	18
6.2	Cleaning .....	18
6.2.1	Housing and Power Supply .....	18
6.2.2	Quartz Glass of Light Source .....	18

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<b>7.</b>	<b>Warranty .....</b>	<b>19</b>
<b>8.</b>	<b>Service, Repair .....</b>	<b>19</b>
<b>9.</b>	<b>Decommissioning, Disposal .....</b>	<b>19</b>
<b>Appendix</b>		
<b>A 1</b>	<b>Optional Accessories .....</b>	<b>20</b>
<b>A 2</b>	<b>Spare Parts .....</b>	<b>23</b>
<b>A 3</b>	<b>Factory Setting.....</b>	<b>23</b>

## 1. Safety

The handling of the system assumes knowledge of the instruction manual.

### 1.1 Symbols Used

The following symbols are used in the instruction manual:



Indicates a hazardous situation which, if not avoided, may result in minor or moderate injuries.



Indicates a situation which, if not avoided, may lead to property damage.



Indicates a user action.



Indicates a user tip.

Measure

Indicates a hardware or a button/menu in the software.

### 1.2 Warnings



Connect the power supply in accordance with the safety regulations for electrical equipment.

> Danger of injury

> Damage to or destruction of the light source

Do not look directly into the light source

> Danger of injury, damage to the eyes or skin

Do not move exposed electrical contacts and moving parts in the light source.

> Danger of injury

Let the light source cool off for a few minutes before changing the lamp.

> Risk of burns by the still hot lamp

Pay attention to the hot environment when changing the lamp.

> Risk of burns

**NOTICE**

Keep the light source away from liquids and splashes of water.

> Damage to or destruction of the light source

The power supply must not exceed the specified limits.

> Damage to or destruction of the light source

The light source may not be operated with opened bottom cover or removed housing parts.

> Damage to or destruction of the light source

Set up the light source in such a way, that all vents are openly accessible and thus sufficient ventilation (built-in fan) is guaranteed.

> Overheating, damage or destruction of the light source

Do not insert foreign objects into the openings of the light source.

> Damage to or destruction of the light source

### **1.3 Notes on CE Identification**

The following applies to the ELTROTEC Endolight FOT Halogen 100 light source:

- EU directive 2004/108/EC
- EU directive 2006/95/EC
- EU directive 2011/65/EU, "RoHS" category 9

Products which carry the CE mark satisfy the requirements of the quoted EU directives and the European standards (EN) listed therein. The EC declaration of conformity is kept available according to EC regulation, article 10 by the authorities responsible at

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The ELTROTEC Endolight FOT Halogen 100 light source is designed for use in industry and satisfies the requirements of the standards

- EN 61000-6-1: 2007
- EN 61000-6-4: 2007

The system satisfies the requirements if they comply with the regulations described in the instruction manual for installation and operation.

### 1.4 Proper Use

- The ELTROTEC Endolight FOT Halogen 100 light source is designed for use in industrial area with various fiber optics applications (lighting, endoscopy, etc.).
- It is equipped with 100 Watt Long life lamp, which connects high luminous efficiency with high lifetime.
- Light output for up to 13 mm active fiber diameter
- The ELTROTEC Endolight FOT Halogen 100 light source is not suitable for medical purposes.
- The system may only be operated within the limits specified in the technical data, see Chap. 2.2.
- Use the ELTROTEC Endolight FOT Halogen 100 light source in such a way that in case of malfunctions or failure personnel or machinery are not endangered.
- Take additional precautions for safety and damage prevention for safety-related applications.

### 1.5 Proper Environment

- Operating temperature: -10 °C to 40 °C <sup>1</sup> (+14 °F to +104 °F <sup>1</sup>)
- Storage temperature: -25 °C to 60 °C <sup>1</sup> (-13 °F to +140 °F <sup>1</sup>)
- Humidity: 15 to 95 %
- Ambient pressure: Atmospheric pressure
- Electromagnetic compatibility (EMC): EN 61000-6-1: 2007  
EN 61000-6-4: 2007

1) Built-in fan for lamp cooling

## 2. Functional Principle, Technical Data

### 2.1 Short Description

The ELTROTEC Endolight FOT Halogen 100 light source is regarded as the universal solution when using external light sources in the endoscopy. The high light output and simple operation facilitate optimal inspection results. The light intensity is adjusted steplessly with the controllable light sources by means of a mechanical iris diaphragm without the color temperature of the light source is influenced. Different adapters and glass fiber applications permit various uses.

### 2.2 Technical Data

Model	ELTROTEC Endolight FOT Halogen 100	
Power	100 W	
Fiber diameter	13 mm	
Operating life type	without economy mode	1500 h
	with economy mode	> 3000 h
Power supply	110 V 60 Hz / 230 V 50 Hz adjustable	
Light source	12 V / 100 W halogen lamp	
	Osram HLX type 64637	
Color temperature	3050 K	
Lamp circuit	Step I	100 % intensity / approx. 1500 h burning time
	Step II	92 % intensity / approx. 3000 h burning time
Lamp cooling	Built-in fan	
Intensity control	Stepless via iris diaphragm (without affecting the color temperature)	
Fuse	2 AT	
Dimensions	130 x 190 x 280 mm	
Operating temperature	-10 °C to 40 °C (+14 °F to +104 °F)	
Storage temperature	-25 °C to 60 °C (-13 °F to +140 °F)	



<b>Model</b>	<b>ELTROTEC Endolight FOT Halogen 100</b>
Weight	3.3 kg
Electromagnetic compatibility (EMC)	EN 61000-6-1: 2007 and EN 61000-6-4: 2007

### 3. Delivery

#### 3.1 Unpacking

- ELTROTEC Endolight FOT Halogen 100 light source
- Halogen lamp Osram type HLX 64637 12 V / 100 W
- Power supply cable, 2 m long

You will find the suitable fiber optics and fiber-optic lighting units under Optional Accessories, see Chap. [A 1](#)

➡ Check the delivery for completeness and shipping damage immediately after unpacking.

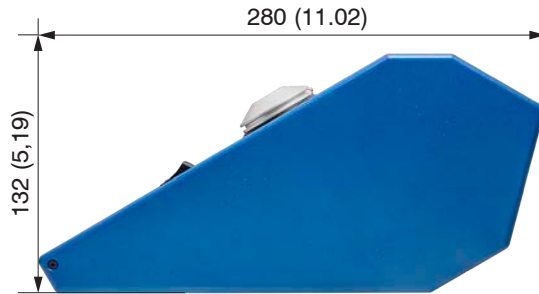
➡ In case of damage or missing parts, please contact the manufacturer or supplier immediately.

#### 3.2 Storage

- Storage temperature: -25 °C to 60 °C (-13 °F to +140 °F <sup>1)</sup>)
- Humidity: 15 to 95 %
- Ambient pressure: Atmospheric pressure

## 4. Mounting

### 4.1 Light Source



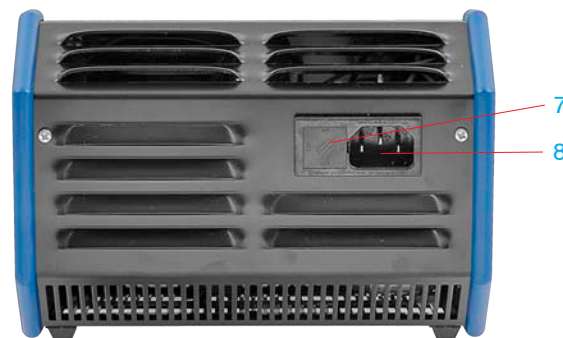
*Fig. 1 Dimensions ELTROTEC Endolight FOT Halogen 100 front view*



*Fig. 2 Dimensions ELTROTEC Endolight FOT Halogen 100 side view*

Dimensions in mm (inches), not to scale

## 4.2 Control Elements



1	Iris diaphragm control lever
2	Anti-rotating device keyway
3	Fiber optic connection
4	On / off switch with control lamp
5	Economy switch, 2-position
6	Handle
7	Voltage selector with fuse holder
8	Power input
9	Bottom cover screw (open for lamp replacement)



Fig. 3 Control elements front side, rear side and bottom side

## 5. Operation

### 5.1 Getting Ready for Operation

Check the built-in heat filter for possible break.

> Damage to the iris diaphragm and the connected fiber optics by excessive heat development

• **i** Set the iris diaphragm control lever (1), see Chap. 4.2, initially at minimum position (left) to prevent glare.

### 5.2 Commissioning

The light source is supplied as standard for the connection to 230 VAC operating voltage, see Chap. A 3.

➡ Plug for 110 VAC operating voltage the voltage selector (7), see Chap. 4.2, see Chap. 5.3.

• **i** The terminals 120 and 240 Volt are not occupied and cannot be used. If the voltage selector has this setting, the light source can therefore not be used.

➡ Connect the supplied power supply cable to the power input (8), see Chap. 4.2 , see Fig. 4 and the power supply.

**NOTICE**

**NOTICE**

Check whether the input voltage is set correctly, 110 or 230 V according to the input voltage used in your country.



Fig. 4 Connection power supply cable to power input

➡ Connect the fiber optic cable to the fiber optic connection (3), see Chap. 4.2.

Some fiber optic cables (e.g. multi-armed gooseneck fiber optic cables) and adapters are fitted with a cam (anti-rotation device), which enters the anti-rotation device keyway (2), see Chap. 4.2, to prevent rotation of the connector.

➡ Press the On / Off switch (4), see Chap. 4.2.

The control lamp lights up. The light source is ready to operate.

**NOTICE**

Always check after switching on whether the built-in fan runs (noise).

> Destruction of the lamp, the heat protection filter and the iris diaphragm due to excessive heating (with a stationary fan).

**i**

In case of a defective fan, turn the light source off immediately.

**CAUTION**

Let the light source cool down still some minutes after switching off before storing it in any closed room or in the original packaging.

> Risk of fire by heat

The lamp power can be adjusted by the 2-position economy switch (5), see Chap. 4.2. If there is sufficient light the switch should be on level II (intensity 92 %). Thus, a longer lamp lifetime can be achieved.

The light intensity can be adjusted steplessly with the iris diaphragm control lever (1), see Chap. 4.2.

The light adjustment is made by a mechanical iris diaphragm (without interference of the color temperature).

### 5.3 Adjust the Input Voltage 110 / 230 V

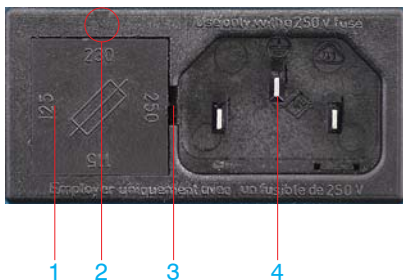
➡ Unplug the power supply cable.

The factory setting of the voltage input is set on 230 VAC operating voltage. The positioning arrow points to 230 (2), see Fig. 5.

➡ To adjust the input voltage to 110 VAC, raise the voltage selector element at the designated cut, see Fig. 5, see Fig. 6, using a screw driver and pull it out.

#### NOTICE

Check whether the input voltage is set correctly, 110 or 230 V according to the input voltage used in your country.



1	Voltage selector element
2	Positioning arrow
3	Cut to raise the voltage selector element
4	Power supply cable connection

Fig. 5 Detail rear side of light source

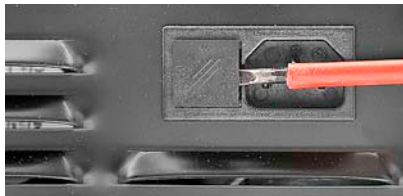


Fig. 6 Raise the voltage selector element

➡ Turn the element until the number 110 is on arrow position.

➡ Insert the voltage selector element again and press on it.

➡ Plug in again the power supply cable.

## 5.4 Fuse Replacement

➡ Unplug the power supply cable from the socket and from the light source.

The fuse (5 x 20 mm, 2 AT) is in the voltage selector element (8), see Chap. 4.2.

➡ Raise the voltage selector element, see Fig. 5, at the designated cut using a screwdriver, see Fig. 7 (1) and pull it out (2).

1



2



3



Fig. 7 Fuse replacement

➡ Remove the defective fuse (3) and insert a new fuse (2 AT).

Please use only the fuses recommended in the appendix under optional accessories (2 AT), see Chap. A 2.  
> Damage to the light source

➡ Insert the voltage selector element again and press on it.

ⓘ

Pay attention onto the correct position of the operating voltage.

➡ Plug in again the power supply cable.

**NOTICE**

## 5.5 Changing the Lamp

**CAUTION**

Let the light source cool down for a few minutes before changing the lamp.  
> Risk of burns by the still hot lamp

**NOTICE**

Do not touch the inside of the lamp (mirror, lamp bulb).  
> Reducing the light intensity and lifetime of the lamp by finger prints and dust

- ➡ Switch off the On / Off switch, see [Fig. 3](#) and disconnect the power supply cable from the wall socket.
- ➡ Remove the screw, see [Fig. 3 \(9\)](#), on the bottom side of the light source so that the bottom cover can be removed.
- ➡ Loosen the lamp out of the holder carefully, lift the spring clip slightly, see [Fig. 10](#) and pull the lamp from the lamp socket, see [Fig. 11](#).



*Fig. 8 Remove the bottom cover*



*Fig. 9 Lamp visible*





*Fig. 10 Lift the spring clip*



*Fig. 11 Loosen the lamp*

- Insert the new lamp into the lamp socket and position them into the holder.
- 1 Make sure that the lamp coding is placed again in the designated cut.

Other settings are not required, as the holding system provides an optimum adjustment with a footprint up to 13 mm (maximum applicable fiber diameter).

- Close the front door and mount it again with the screw (3), see [Fig. 3](#).
- Plug in the power supply cable.

## 6. Instructions for Operation

### 6.1 General

Except the descriptive maintenance work (change of lamp, see Chap. 5.5, fuse replacement, see Chap. 5.4, voltage settings, see Chap. 5.3) no repairs or changes at the light source may be made, see Chap. 7., see Chap. 8..

#### **NOTICE**

Do not immerse the device in water. Do not connect the device/power supply cable if it is damp. The light source may get damaged or destroyed.

### 6.2 Cleaning

#### 6.2.1 Housing and Power Supply

- Turn off the ELTROTEC Endolight FOT Halogen 100 light source and disconnect the power supply cable from the wall socket and from the rear side of the device.
- Wipe the exterior surfaces using a damp cloth with mild soapy water.
- Wipe the power supply cable using a damp cloth with mild soapy water.

#### 6.2.2 Quartz Glass of Light Source

- Remove any fingerprints using a cotton swab or isopropyl alcohol (rubbing alcohol).

## 7. Warranty

All components of the device have been checked and tested for perfect function in the factory. In the unlikely event that errors should occur despite our thorough quality control, this should be reported immediately to MICRO-EPSILON Eltrotec.

The warranty period lasts 12 months following the day of shipment. Defective parts, except wear parts, will be repaired or replaced free of charge within this period if you return the device free of cost to MICRO-EPSILON Eltrotec. This warranty does not apply to damage resulting from abuse of the equipment and devices, from forceful handling or installation of the devices or from repair or modifications performed by third parties. No other claims, except as warranted, are accepted. The terms of the purchasing contract apply in full. MICRO-EPSILON Eltrotec will specifically not be responsible for eventual consequential damages. MICRO-EPSILON Eltrotec always strives to supply the customers with the finest and most advanced equipment. Development and refinement is therefore performed continuously and the right to design changes without prior notice is accordingly reserved. For translations in other languages, the data and statements in the German language operation manual are to be taken as authoritative.

## 8. Service, Repair

In the event of a defect on the ELTROTEC Endolight FOT Halogen 100 light source or on power supply cable please send us the effected parts for repair or exchange.

In the case of faults the cause of which is not clearly identifiable, the whole measuring system must be sent back to:

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## 9. Decommissioning, Disposal



- ➡ Disconnect the power supply cable from the light source.
- ➡ Do the disposal according to the legal regulations (see directive 2002/96/EC).

## Appendix

### A 1 Optional Accessories

Fiber optic cable			
Designation	Photo	Description	Article number
Fiber optic cable EL 1/4 1800 MEP/S with Lemo 1 adapter		Endoscope fiber optic fibers with high packing density, fiber bundle diameter: 4 mm Length: 1800 mm Metal protective conduit with PVC coating. One side FOT light source connector One side Lemo1 connector = cladding diameter 7.6 mm	20710831
Liquid fiber optic cable EFL 1/4 1800 MEP with Lemo 1 adapter		Endoscope liquid fiber optic cable, fiber bundle diameter: 4 mm Length: 1800 mm Cladding diameter: Metal protective conduit with PVC coating. One side FOT light source connector One side Lemo1 connector	20710446

Designation	Photo	Description	Article number
Fiber optic 1 arm, UL1 - 1200		Length: 1200 mm, metal protective conduit with PVC coating, outer diameter 8 mm, fiber bundle diameter 3 mm, one side FOT light source connector	20710424
Fiber optic 1 arm, UL1 - 1800		Length: 1800 mm, metal protective with PVC coating, outer diameter 8 mm, fiber bundle diameter 3 mm, one side FOT light source connector	20710425
<b>Faser-optic lighting units</b>			
Gooseneck attachment		Gooseneck attachment from semi-rigid metal-tube, chrome plated. Fiber bundle diameter 3 mm. Attachable to cable type UL	20710430
Rigid probe, Straight model UST/A		Attachable to UL fiber optic cables, length 150 mm, outer diameter 3 mm, bundle diameter 2 mm for the illumination of drill holes, specially for tool making	21060435
Rigid probe Lightly angled, UST/C			21060436
Rigid probe Angled at 90°, UST/B, r = 10 mm			21060547

Designation	Photo	Description	Article number
Mirror deflection		US1 mirror on fixture, $\varnothing$ 21 mm	21060432
		US2 mirror on fixture, $\varnothing$ 25 mm	21060433
		USP mirror fixture	21060431
Focussing lens		Focussing lens, UFL 21060438; attachable to UL fiber optic	21060438

More fiber optics or faser-optic lighting units are available on request.

**A 2 Spare Parts**

<b>Designation</b>	<b>Photo</b>	<b>Description</b>	<b>Article number</b>
Endolight FOT 100 halogen lamp	 A photograph of a halogen lamp with a clear glass envelope and a metal base with two pins. The label on the lamp reads 'Osram HLX 64637 12V 100W'.	Osram HLX 64637 12 V / 100 W	21310404
Endolight FOT 100 fuse	 A photograph of a cylindrical fuse with metal end caps. The label on the fuse reads '2 AT Nr. 543'.	2 AT Nr. 543	- - -

**A 3 Factory Setting**

Voltage input: 230 VAC operating voltage



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