ESC Medicams

S200 Cold LED Light Source

User Instruction Manual

Model: S200 Black Edition
Application: Endoscopy, Laparoscopy, Arthroscopy, Hysteroscopy, Urology, ENT and General Minimally Invasive Surgery

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1. Introduction

Thank you for purchasing the ESC Medicams S200 Cold LED Light Source.

The S200 is a high-intensity medical LED illumination system designed to provide bright, stable, daylight-quality illumination for rigid and flexible endoscopic procedures.

The system utilizes advanced LED technology to deliver powerful light output while generating significantly less heat than conventional xenon light sources.

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2. Intended Use

The S200 Cold LED Light Source is intended to provide illumination for:

- Laparoscopy
- Hysteroscopy
- Urology
- Arthroscopy
- ENT Endoscopy
- Bronchoscopy
- Gastrointestinal Endoscopy
- Veterinary Endoscopy

The light is transmitted through a fiber optic light cable connected to a rigid or flexible endoscope.

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3. Contraindications

There are no known contraindications related directly to the light source.

The device must only be used by trained healthcare professionals familiar with endoscopic procedures.

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4. SAFETY INFORMATION

IMPORTANT SAFETY NOTICE

Before operating this device, read this operating manual thoroughly and carefully.

When using this device with an endoscopic light source, fire and/or severe injury may result to the patient, user, or surrounding objects if the instructions in this manual are not followed.

All light sources generate significant heat at:

- Endoscope distal tip
- Scope light post
- Fiber optic light cable tip
- Light cable adapter

Higher brightness settings generate higher heat levels.

Always adjust the brightness level of the camera and monitor before increasing the brightness level of the light source.

Use only the minimum brightness necessary to adequately illuminate the surgical field.

Avoid touching the illuminated scope tip or light cable tip to the patient.

Never place:

- Scope tip
- Light cable tip
- Scope light post
- Light cable adapter

on surgical drapes or other flammable materials.

Always place the light source in Stand-by mode whenever the scope is removed from the light cable or when the system is unattended.

The scope tip, scope light post, light cable adapter and light cable tip may remain hot for several minutes after entering Stand-by mode and may still cause burns or fire.

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5. WARNINGS

To avoid serious injury to the user or patient and to prevent damage to the equipment:

Electrical Safety

1. Use only a properly grounded hospital-grade power outlet.
2. To avoid electric shock, the equipment must only be connected to a power supply with protective earth grounding.
3. Portable extension cords or multiple socket outlets should not be used with this equipment.
4. It is recommended to use a Voltage Stabilizer or UPS with this instrument.

Operational Safety

5. Test the equipment before every surgical procedure.
6. Never use this equipment in the presence of flammable or explosive gases.
7. Never remove the covers of the light source. Doing so may expose dangerous voltages and damage internal electronics.
8. Do not attempt repairs, modifications, or adjustments not described in this manual.
9. Pay close attention to cleaning and maintenance instructions.
10. Never sterilize any part of the light source console.

Electromagnetic Interference

11. If the device is used near electrosurgical equipment, image disturbance may occur due to electromagnetic interference.

To minimize interference:

- Connect the electrosurgical unit to a separate power outlet.
- Ensure proper protective earth grounding.
- Maintain adequate distance between devices.

Endoscope Inspection

12. Before each procedure, inspect the endoscope and fiber optic cable for:

- Damage
- Sharp edges
- Rough surfaces
- Broken fibers

Do not use damaged accessories.

5.1 Determining Safe Illumination Intensity

WARNING

Excessive illumination intensity may cause:

- Excessive heating of the endoscope distal tip
- Patient tissue burns
- Damage to endoscope optics
- Premature deterioration of fiber optic light cables
- Excessive glare and image washout

The appropriate brightness setting varies depending upon:

- Endoscope diameter
- Fiber optic cable condition
- Fiber optic cable diameter
- Camera sensitivity
- Surgical application
- Working distance

Always determine a safe operating intensity before use.

Safe Intensity Verification Test

Perform the following test before each procedure or whenever a different endoscope or fiber optic cable is used.

Step 1

Connect:

- Fiber optic light cable to the light source
- Endoscope to the fiber optic cable

Step 2

Switch ON the S200 LED Light Source.

Step 3

Set illumination intensity to **50%**.

Step 4

Allow the system to stabilize for approximately 10 seconds.

Step 5

Place the tip of your finger approximately **25 mm (1 inch)** away from the distal end of the endoscope.

Step 6

Maintain this position for **10 seconds**.

Evaluation

If noticeable heat is felt:

Reduce the light intensity gradually until no significant heating sensation is detected.

If no heat is felt:

Increase the intensity gradually and repeat the test.

Determine the highest illumination setting that does not produce noticeable heating or discomfort at the fingertip.

Use an illumination setting below this level during clinical use.

WARNING

If the distal tip becomes uncomfortable to the fingertip during this test, it may become hot enough to:

- Burn patient tissue
- Damage drapes or flammable materials
- Cause injury during prolonged exposure

Immediately reduce the light intensity.

CAUTION

This fingertip test is intended only as a practical verification method to assist in selecting a suitable illumination level.

The surgeon remains responsible for using the minimum light intensity necessary to adequately visualize the surgical field.

Higher illumination levels should only be used when clinically required.

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6. Product Overview

Front Panel

(Insert product image here)

Components

1. Fiber Optic Light Port
2. 5-inch Touch Screen Display
3. LED Light Engine

Rear Panel

Components

1. AC Power Inlet

2. Power Switch
3. Fuse Holder
4. Equipotential Ground Terminal
5. Cooling Fan Exhaust

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7. Installation

Step 1: Connect Power

1. Ensure power switch is OFF.
2. Connect supplied power cable.
3. Connect to grounded hospital-grade outlet.

Input Power:

- 100–240 VAC
- 50/60 Hz

Step 2: Connect Light Cable

1. Inspect cable for damage.
2. Insert fiber optic cable fully into light port.
3. Connect opposite end to endoscope.

WARNING

Do not activate light source without a connected endoscope.

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8. Powering ON

1. Press rear/front power switch.
2. ESC Medicams logo appears.
3. System performs self-test.

4. Main operating screen appears.

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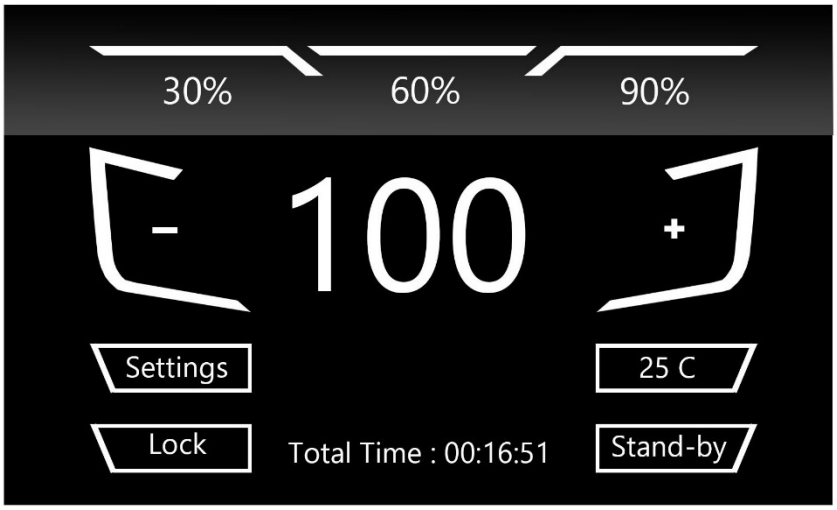
9. Touch Screen Interface



Screen Description

Brightness Indicator

Top scale displays current illumination level.

- 30%
- 60%
- 90%

Visual indication helps monitor output intensity.

Brightness Control Buttons

(+) Button

Increase illumination intensity.

Press repeatedly for gradual adjustment.

(-) Button

Decrease illumination intensity.

Recommended to start at lower levels and increase only if required.

Brightness Display

Large center number indicates current output level.

Example:

100

= 100% light intensity

Temperature Display

Example:

25°C

Displays internal LED operating temperature.

Monitor temperature during prolonged procedures.

Total Time Counter

Example:

00:16:51

Displays cumulative operating time during current session.

Useful for service monitoring.

Settings Button

Access system configuration menu.

Allows:

- Brightness calibration
- Language selection
- System information
- Factory settings

Lock Button

Prevents accidental touch operation.

To unlock:

Press and hold for 3 seconds.

Stand-by Button

Activates low-output safety mode.

Recommended whenever:

- Scope is removed
- Procedure is paused
- System is unattended

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Step 2

Switch ON the S200 LED Light Source.

Step 3

Set illumination intensity to **50%**.

Step 4

Allow the system to stabilize for approximately 10 seconds.

Step 5

Place the tip of your finger approximately **25 mm (1 inch)** away from the distal end of the endoscope.

Step 6

Maintain this position for **10 seconds**.

Evaluation

If noticeable heat is felt:

Reduce the light intensity gradually until no significant heating sensation is detected.

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Recommended Practice

For most procedures:

Procedure	Typical Intensity
ENT	30–50%
Hysteroscopy	40–60%
Arthroscopy	30–50%
Urology	40–50%
Laparoscopy	60–90%

Always use the lowest illumination level that provides adequate visualization.

Actual brightness depends upon:

- Camera sensitivity
- Endoscope diameter
- Light cable quality
- Surgical environment

Additional Warning

Never operate the light source continuously at 100% intensity unless clinically necessary. Prolonged operation at maximum intensity may significantly increase the temperature of the endoscope distal tip, light cable connector, and optical components, potentially causing burns, equipment damage, and reduced service life of the endoscope and fiber optic cable.

10. Operating Instructions

Activating Illumination

1. Connect light cable.
2. Connect endoscope.
3. Press Stand-by button to activate illumination.
4. Adjust brightness using + and – controls.

11. Stand-by Mode

When Stand-by is activated:

- LED output reduces to minimum
- Heat generation decreases
- Power consumption reduces

Use Stand-by Whenever:

- Scope is disconnected
- Procedure pauses
- Surgeon changes instruments

12. Cleaning and Disinfection

Before Cleaning

1. Switch OFF system.
2. Disconnect AC power.

Cleaning Procedure

Wipe external surfaces using:

- Soft lint-free cloth
- Neutral detergent
- Hospital disinfectant

Do Not Use

- Acetone
- Solvents
- Abrasive cleaners
- Excessive moisture
- DO NOT IMMERSE THE EQUIPMENT

13. Preventive Maintenance

Every 6 Months:

- Inspect fiber optic connector
- Inspect power cable
- Clean ventilation openings

Every 12 Months:

- Verify light output
- Verify temperature control
- Verify touchscreen operation

Recommended service should be performed by authorized personnel.

14. Troubleshooting

Problem	Possible Cause	Solution
No display	No power	Check AC connection
No light output	Cable not connected	Reinsert cable
Low brightness	Damaged fiber cable	Replace cable
High temperature	Vent blocked	Clean vents
Touch screen not responding	Software lock	Restart system
Unit shuts down	Overheating protection	Allow cooling and restart

15. Technical Specifications

Light Source

- Technology: Medical High-Power LED
- Type: Cold LED Illumination

Brightness Control

- Adjustable 0–100%

Display

- 5-inch Color Touch Screen

Temperature Monitoring

- Real-time LED temperature display

Input Voltage

- 100–240 VAC
- 50/60 Hz

Cooling

- Intelligent Forced-Air Cooling

Compatibility

Compatible with:

- Storz Light Cables
- Olympus Light Cables (with adapter)
- Wolf Light Cables (with adapter)

Operating Conditions

- Temperature: 10°C–40°C
- Humidity: 30–75%

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16. Storage Conditions

- Temperature: -20°C to +60°C
- Relative Humidity: 10–90%

Store in clean, dry environment.

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17. Warranty

The S200 Cold LED Light Source is covered under ESC Medicams warranty terms.

Warranty excludes:

- Physical damage
- Liquid ingress
- Improper installation
- Unauthorized repair
- Damage caused by power surges