

DS 550

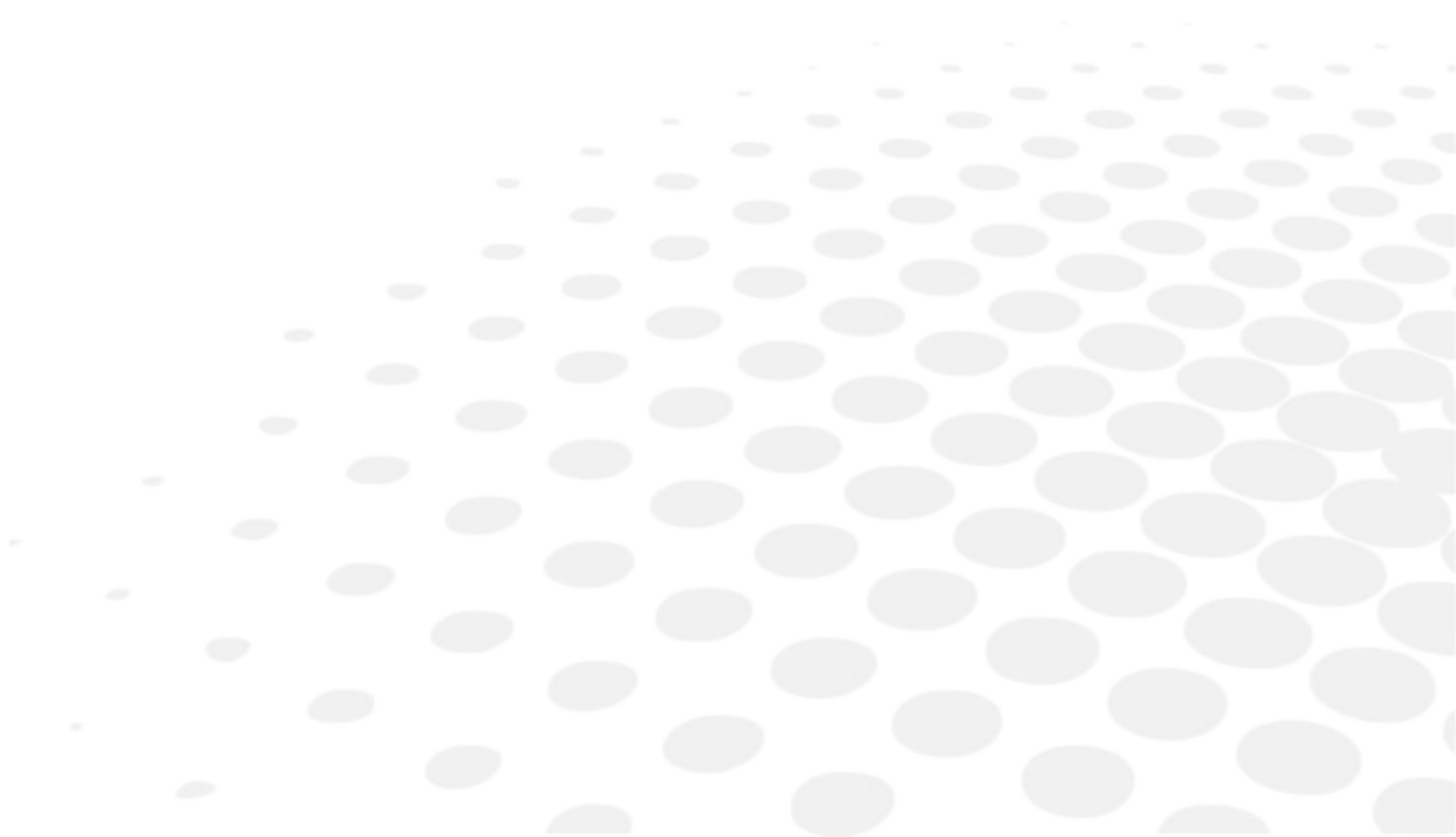





User manual

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I. INTRODUCTION




	The complete user manual is available on a web space. To access, please scan the QR code below using a dedicated application.
	Le manuel utilisateur complet est disponible sur un espace web. Pour y accéder veuillez scanner le QR code ci-dessous à l'aide d'une application dédiée.
	El manual de uso completo está disponible en la web. Para acceder, escanee el código QR que se encuentra a continuación con la ayuda de una aplicación.




1. GENERAL WARNINGS

Warning

	Please carefully read this manual before using the device.
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All our products have been manufactured with the greatest attention to safety. To use the device effectively and safely please read this user manual carefully before installing and using the device, and follow the warnings reported in the manual and on the outside of device itself. Operators, who have used the device previously, should check again the instructions reported in this manual. The manual must be readily available for consultation.

Warning


	The user must take into account the potentially harmful effects to the environment or human health due the improper disposal of the equipment or of parts of it.
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To prevent the release of hazardous substances into the environment and to promote conservation of natural resources, the manufacturer, in case the user wishes to dispose of the device used at the end of its useful life, facilitates the possibility of its reuse and the recovery and recycling of the materials contained therein.

2. SAFETY MARKS, PICTURES USED IN THIS DOCUMENT

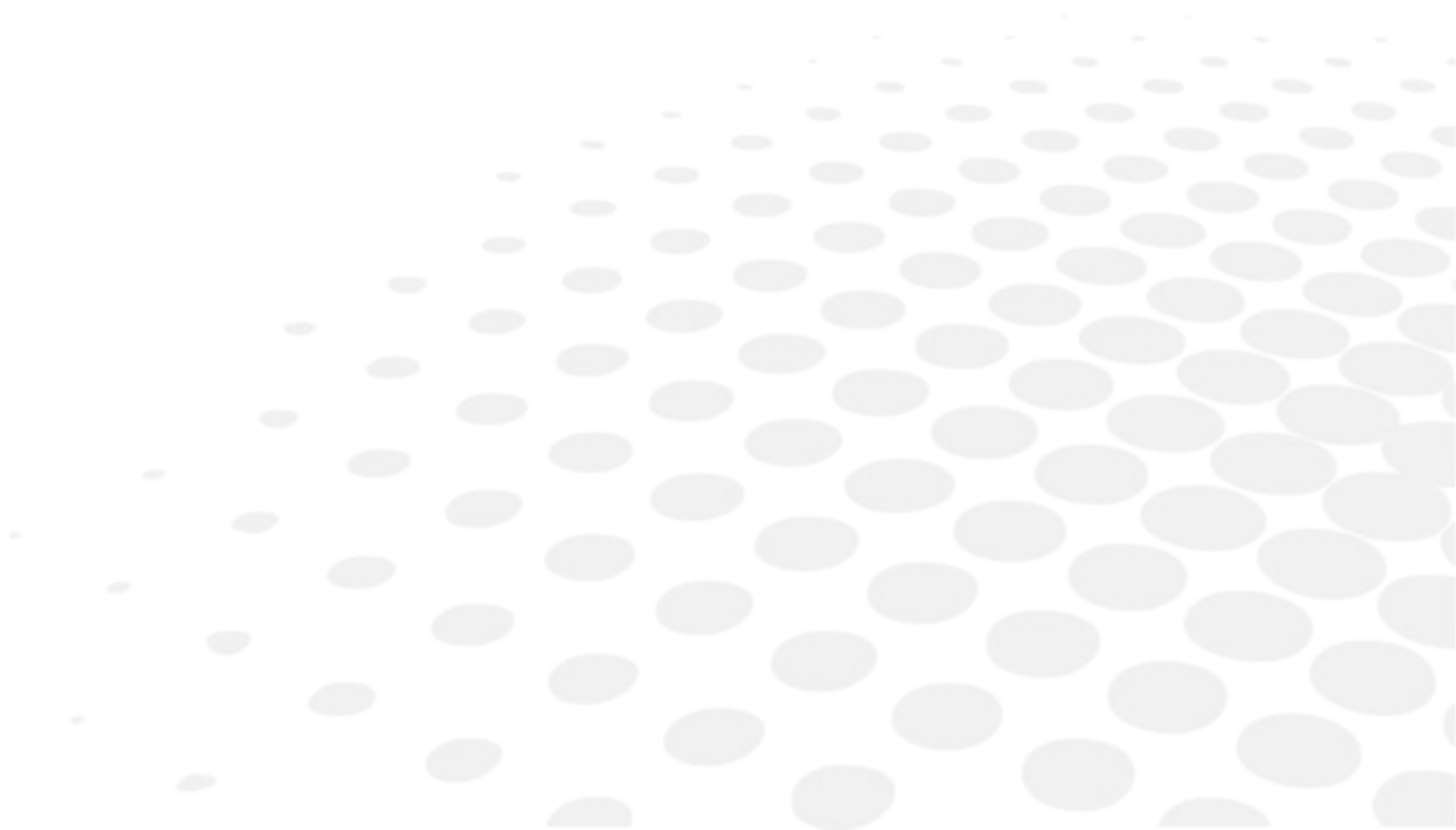
Symbol	Meaning
	Class II device (in compliance with EN 60601-1 standards) This means that the isolation from the mains supply is highly reliable, therefore no safety earthing connection is necessary
	Symbol of the waste disposal in compliance with the Directive 2012/19/UE (WEEE), and 2011/65/UE (RoHS II)
	CE marking (European Regulation on Medical Device)
	Obligation: Read the instructions for use
	Symbol to point out attention on further information written in the instruction for use of the device
	Manufacturer
	Indicates the date when the medical device was manufactured

Expected useful life: 7 years

Complies with  marking.

Date of first marking: December 2015

II. GUIDANCE AND DECLARATION



1. ELECTROMAGNETIC EMISSION

Guidance and manufacturer's declaration – electromagnetic emissions

The equipment DS550 is intended for use in the electromagnetic environment specified below. The customer or the end user of the DS550 should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The DS550 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The DS 550 is suitable for use in all establishments including domestic establishments and those directly connected to the public low voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	


2. ELECTROMAGNETIC IMMUNITY

Guidance and manufacturer's declaration – electromagnetic immunity			
The equipment DS550 is intended for use in the electromagnetic environment specified below. The customer or the end user of the DS550 should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T for 0.5 cycle 40 % U_T for 5 cycles 70 % U_T for 25 cycles <5 % U_T for 5 s	<5 % U_T for 0.5 cycle 40 % U_T for 5 cycles 70 % U_T for 25 cycles <5 % U_T for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the DS550 requires continued operation during power mains interruptions, it is recommended that the DS550 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity

The equipment DS550 is intended for use in the electromagnetic environment specified below.

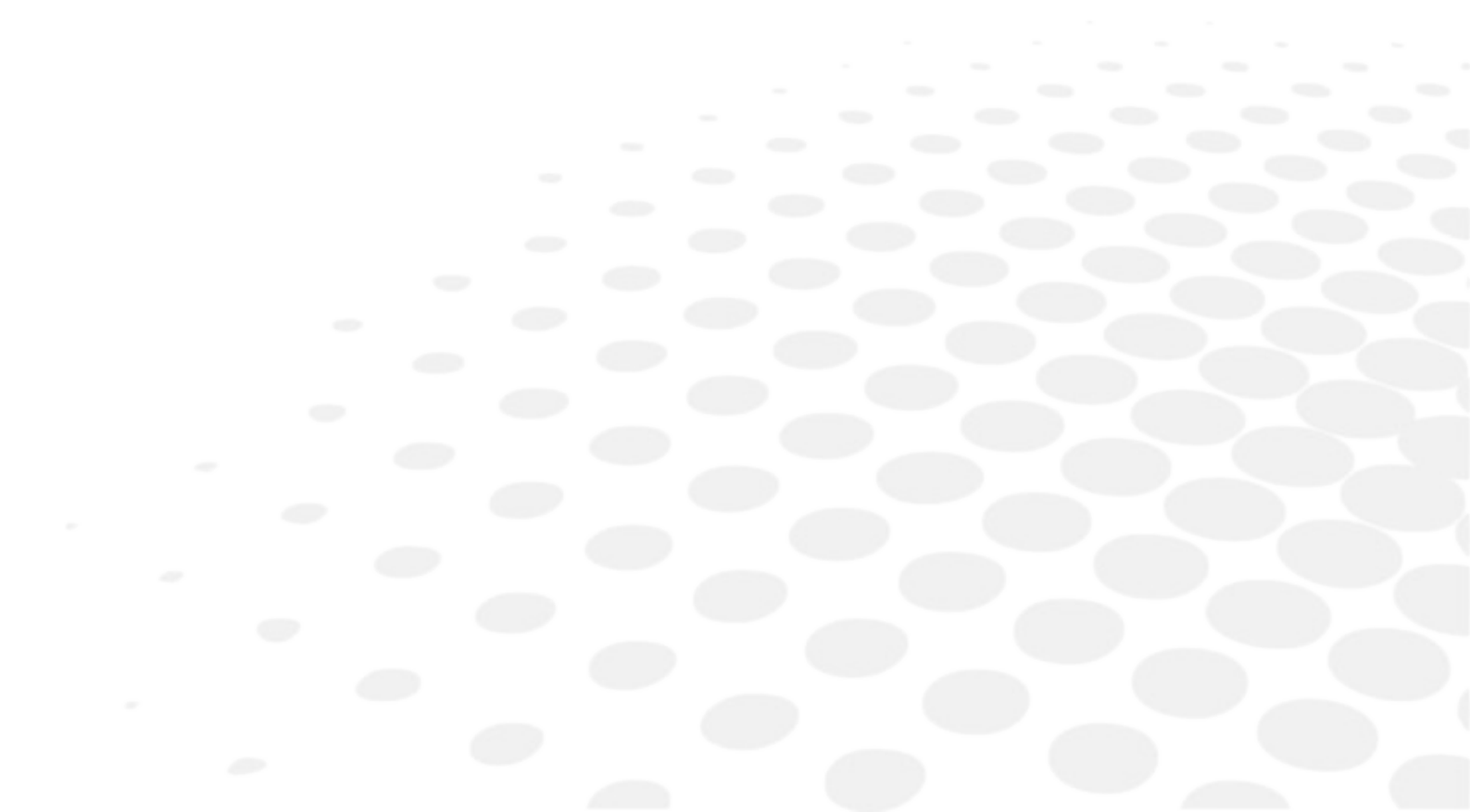
The customer or the user of the DS550 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the DS550, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.167 \cdot \sqrt{P}$ $d = 1.167 \cdot \sqrt{P} \text{ 80 MHz to 800 MHz}$ $d = 2.333 \cdot \sqrt{P} \text{ 800 MHz to 2.5 GHz}$ <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and (d) is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

III. TECHNICAL DATA



1. TECHNICAL SPECIFICATIONS

- Dimensions: 170 mm x 88 mm x 45 mm
- Weight: 745 grms
- Power input: 5 V DC / 0.9A (USB3 required)

2. INTENDED USE

DS550 is a digital camera system designed to fit and works with slit lamp model SL550L and SL500L.

It captures images through the software AnaEyes and the trigger positioned at the top of the slit lamp joystick.

Warning



Imaging software require a minimum screen resolution of 1024 x 768 pixels to work properly.

3. ENVIRONMENTAL REQUIREMENTS

As long as the product is kept in its original packaging, it can be exposed to the following environmental conditions without being damaged, and for a maximum period of 15 weeks during shipping and storage:

Operation	<ul style="list-style-type: none"> • Temperature: +10 to +35°C • Humidity: 30 to 90% • Atmospheric pressure: 800 to 1060 hPa
Storage	<ul style="list-style-type: none"> • Temperature: -10 to +55°C • Humidity: 10 to 95% RH • Atmospheric pressure: 700 to 1060 hPa
Transportation	<ul style="list-style-type: none"> • Temperature: -40 to +70°C • Humidity: 10 to 95% • Atmospheric pressure: 500 to 1060 hPa
Vibration	<ul style="list-style-type: none"> • Sinewave: 10Hz to 500Hz • 0.5g Shock 30g. Time: 6ms • Bump 10g. Time: 6ms

4. PACKAGING CONTENTS

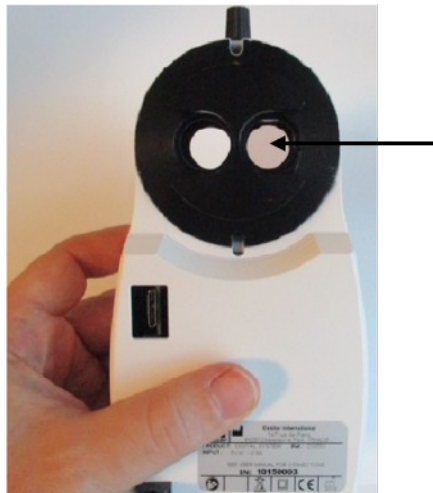
- DS550 main unit
- USB3 cable
- Trigger cable
- USB stick: user manuals + software
- DS550 user manual

5. CLEANING

When the device is not operating, cover it with the plastic cover provided to protect it from dust. Dust accumulating on the eyepiece and on the examination lenses during use must be regularly removed with a soft cloth and rubber bellow. To clean the external surfaces simply use a cloth slightly dampened with water. Do not use any thinners or solvents.

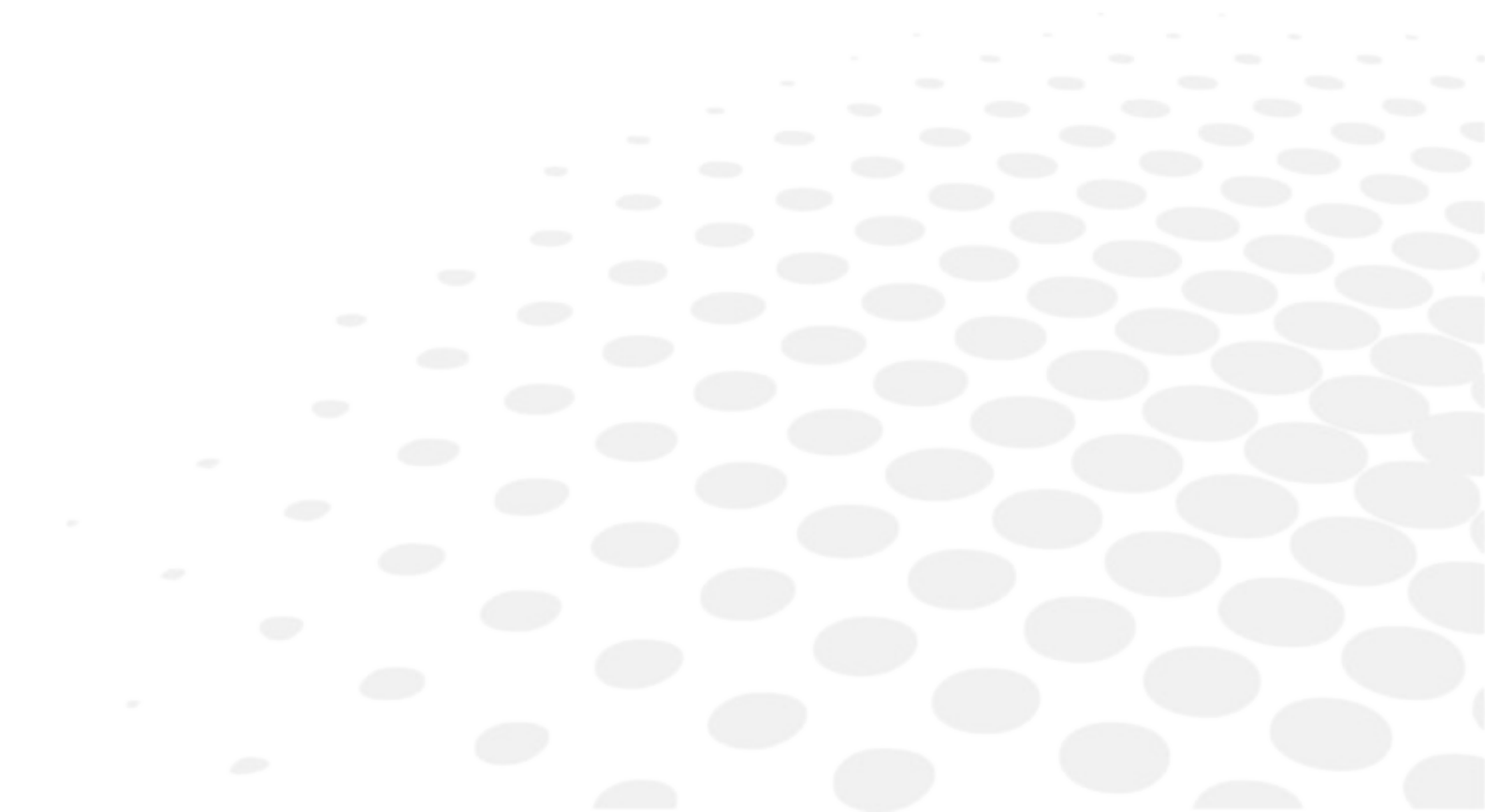
6. MAINTENANCE

- This device does not require periodical calibration check.
- Make sure to clean your device with a dry cloth every week.
- Check data connections and power supply connection every month.
- Avoid using organic solvents to clean your device.
- When the device is not in use, protect it with a supplied dustproof cover.
- If you noticed repeatable dirt on the image capture by AnaEyes, you may solve the issue by cleaning the beam splitter inside the DS550. First disassembled the DS550 and then use a microfiber cloth or a specific swab which will not lose any fiber to clean the beam splitter inside the DS550.



- Never attempt to fix or remodel the device. When the device fails to function properly, do not touch the inside. Contact us or the place of purchase.

IV. INSTALLATION AND COMMISSIONING



1. TRANSPORT AND STORAGE

All equipment is always delivered packaged in optimal conditions to withstand standard transport and storage conditions. In the event that, when removing the device from its packaging, damages due to transport are detected, please contact the installer company or the manufacturer directly.

2. ASSEMBLY OF DS550 ON SLIT LAMP

- 1 Remove the DS500, the computer (if present), the monitor and keyboard (if present) from the packaging.
- 2 Install the splitter.
- 3 Unlock the knob and remove the binocular.
- 4 Insert the digital camera splitter and fix it by locking the knob.
- 5 Put the binocular back in place in the camera separator compartment and, fix it by locking the knob.
- 6 Connect the socket under the digital camera to the socket at the base of the device, using the cable supplied.
- 7 Connect the USB3 cable supplied to the port behind the digital video camera.
- 8 Connect the plug on the other end of the USB3 cable to the port on the back of the computer.
- 9 Turn on the PC, the monitor and the slit lamp.



The digital camera does not have a switch and it is automatically powered via USB3.



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