

MICRODOC



MICRODOC

Instruction Manual

Catalogue Numbers

CSL-MICRODOC

CSL-MDOCUV312

CSL-MDOCUV254

CSL-MDOCUV365

CSL-MDOCUV254/312

CSL-MDOCUV254/365

CSL-MDOCUV312/365

CSL-MICRODOC1D

CSL-MDOCUV3121D

CSL-MDOCUV2541D

CSL-MDOCUV3651D

CSL-MDOCUV254/3121D

CSL-MDOCUV254/3651D

CSL-MDOCUV312/3651D

CSL-MDOCBASIC

CSL-MDOCBASIC1D

Record the following for your records:

Model _____

Catalogue No. _____

Date of Delivery _____

Warranty Period _____

Serial No. _____

Invoice No. _____

Purchase Order No. _____

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Safety Information

Cleaver Scientific microDOC System has been tested and found to be compliant with CE regulations. microDOC system are also RoHS compliant. These limits were designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can generate, use, and radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following information carefully before operating this equipment.

1. Read and follow the manual instructions carefully.
2. Do not alter the equipment. Failure to follow these directions could result in personal and/or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. If solution is accidentally spilled on the instrument, disconnect grounded plug and carry out appropriate decontamination measures. For instance, turn the instrument upside down to avoid solution contacting the internal components. Remove bottom cover and inspect to assure solution has not contacted inner components or connectors. Replace damaged parts, contacted inner components or connectors.
6. Do not use in the presence of flammable or combustible material, fire or explosion may result. This device contains components which may ignite such material.
7. Refer maintenance and servicing to qualified personnel.

8. Ensure that the system is connected to an electrical service according to local and national electrical codes. Failure to comply may cause fire or shock hazard.
9. It is strongly recommended for users to wear proper UV protection equipment whilst operating a microDOC System.



Warning: High Ultraviolet Radiation!

10. The instrument is intended for scientific research use only and must be operated by qualified personnel who realize the potential risks of the use of this instrument. Cleaver Scientific makes no claim that its instruments are designed or certified as medical device; no representation, promises, express warranty, or implied warranty will be made concerning the suitability of these instruments for any medical use. Cleaver Scientific will not provide customers any notice or certification concerning its products being compliant as a medical device.

Installation Safety

Use a high level of precaution against any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated at the rating label, and see to it that the device be seated firmly. Place the unit in a safe and dry location; it must NOT touch the surrounding. Follow the safety precautions for chemicals / dangerous materials. If needed, please contact qualified service representative or support@cleaverscientific.com

Environmental Conditions

Ensure that the instrument is installed and operated strictly under the following conditions:

- Indoor use only
- $\leq 95\%$ RH
- 75 kPa – 106 kPa
- Altitude must not exceed 2000 meters
- Ambient to 40°C operating temperature
- Pollution degree: 2
- Mains supply voltage fluctuations up to $\pm 10\%$ of the normal voltage

Avoiding electrical shock

Follow the guidelines below to ensure safe operation of the unit.

The microDOC System has been designed to utilize shielded wires thus minimizing any potential shock hazard to the user. Cleaver Scientific recommends against the use of unshielded wires.

To avoid electrical shock:

11. In the event of solution spilling on the instrument, it must be dried out for at least 2 hours and restored to NORMAL CONDITION before each operation. NEVER connect or disconnect wire leads from the power jacks when the power is on.
12. WAIT at least 5 seconds after switching off the unit before handling output leads or connected apparatus.
13. ALWAYS make sure that hands, work area, and instruments are clean and dry before making any connections or operating the power supply.
14. ONLY connect the power supply to a properly grounded AC outlet.

Avoiding Damage to the Instrument

Do not attempt to operate the device if it is damaged.

Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).

For proper ventilation and safety, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.

Do not operate the MicroDOC System in high humidity environments (>95%), or where condensation may occur.

Prior to using any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to see if the proposed method will damage the equipment.

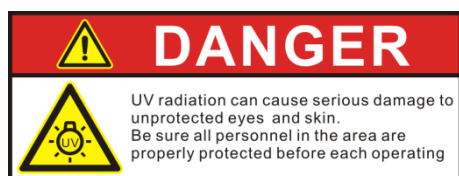
UV Tubes Disposal

The UV tubes contain mercury! Please dispose of the tubes in accordance with local regulations. It is important to handle the waste tubes with care to protect public health and the environment.

Symbols



Indicates an area where a potential hazard may exist.



Indicates a warning of UV radiation. UV radiation can cause serious damage to unprotected eyes and skin. Be sure all personnel in the area are properly protected before each operation.



Indicates disposal instruction
DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit

Packing List

Each microDOC unit includes:

- microDOC Hood with viewing screen (Or basic hood for microDOC BASIC)
- Power Cable
- High resolution camera & accessories
- Memory card for image storage
- USB memory card adapter
- UV Imaging Filter
- Instruction Manual

As well as these additional accessories, per model:

SKU	Blue Light Filter	Transilluminator	Software	Transilluminator Connection Cable
CSL-MICRODOC	Optional	None	None	Included
CSL-MDOCUV312	Optional	CSLUVTS312	None	Included
CSL-MDOCUV254	Optional	CSLUVTS254	None	Included
CSL-MDOCUV365	Optional	CSLUVTS65	None	Included
CSL-MDOCUV254/312	Optional	CSLUVTSDUO312	None	Included
CSL-MDOCUV254/365	Optional	CSLUVTSDUO	None	Included
CSL-MDOCUV312/365	Optional	CSLUVTSDUO365	None	Included
CSL-MICRODOC1D	Optional	None	CLIQS	Included
CSL-MDOCUV3121D	Optional	CSLUVTS312	CLIQS	Included
CSL-MDOCUV2541D	Optional	CSLUVTS254	CLIQS	Included
CSL-MDOCUV3651D	Optional	CSLUVTS65	CLIQS	Included
CSL-MDOCUV254/3121D	Optional	CSLUVTSDUO312	CLIQS	Included
CSL-MDOCUV254/3651D	Optional	CSLUVTSDUO	CLIQS	Included
CSL-MDOCUV312/3651D	Optional	CSLUVTSDUO365	CLIQS	Included
CSL-MDOCBASIC	Optional	None	None	None
CSL-MDOCBASIC1D	Optional	None	CLIQS	None

Packing List Checked by: _____

Date: _____

The packing lists should be referred to as soon as the units are received to ensure that all components have been included. The unit should be checked for damage when received.

Cleaver Scientific is liable for all missing or damaged parts / accessories within 7 days after customer received this instrument package. Please contact Cleaver Scientific immediately regarding this issue. If no response within such period from consignee party, that will be consignee party's whole responsibility.

Please contact your supplier if there are any problems or missing items.

Specifications

Camera	Canon EOS 2000D
Effective Pixels	Approx. 24.1 megapixels
Recording Media	SD memory card, SDHC memory card, SDXC memory card
Image sensor	CMOS sensor
Image Resolution	720 × 480 up to 6,000 × 4000
Focal Length & Maximum Aperture	18-55mm f/3.5-5.6
Lens	Canon EF mount
Filter (*Ordered Separately)	Ethidium Bromide or Blue light (58mm)
Multi-power Source	For camera, inner light lamp, screen
Monitor	Adjustable Tilt
Inner White Light	2 × white light LED
Safety Door Switch	Automatically shut down UV transilluminator, while opening the chamber door during operation.
Dimension (with camera)	300 x 350 x 510 mm
Rated Voltage	110V – 240V
Weight	Approx. 3.75 kg

Operating Instructions

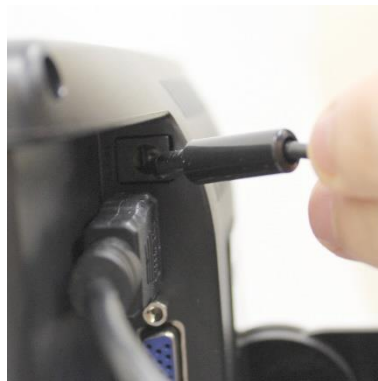
Installation

microDOC BASIC systems do not require installation and can simply be placed on an existing transilluminator. microDOC systems are delivered pre-assembled and do not require any complex assembly. Installation can be achieved in these simple steps.

1. Connect the camera to the screen by plugging in the HDMI cable to the screen and camera



2. Connect the power supply to the screen by plugging in the power cable.



Connecting to UV transilluminator

microDOC systems can be connected to an existing transilluminator to allow control of UV or blue lighting and enable the safety switch to shut-off the UV lights when the microDOC door is opened. To connect the microDOC to a UV transilluminator, place the microDOC on the UV or blue transilluminator and follow these steps:

1. Plug the supplied 3 pin connector into the back of the microDOC as shown.



2. Plug the other end of the 3 pin cable into the transilluminator power inlet.

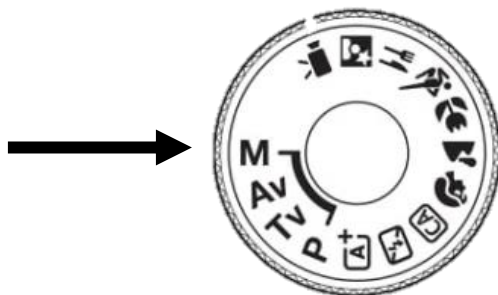


The microDOC system is now ready to be used with the transilluminator.

Camera set-up

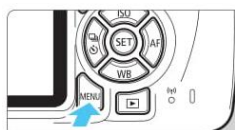
microDOC cameras are supplied pre-configured for use in gel documentation. The settings of the camera should not be changed upon installation. If at any point, the camera settings are altered, use the following instructions to return the camera to the optimum settings for gel documentation.

1. Set the camera mode to M, on the rotary dial:

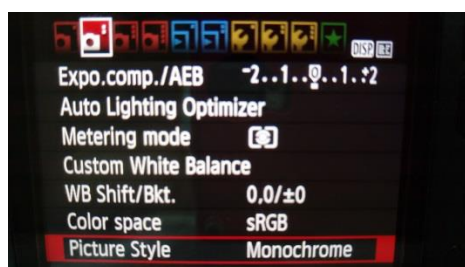


2. Set the image to monochrome mode:

- a. Press the menu button



- b. Navigate to camera options #2



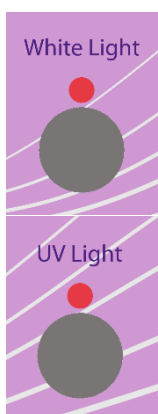
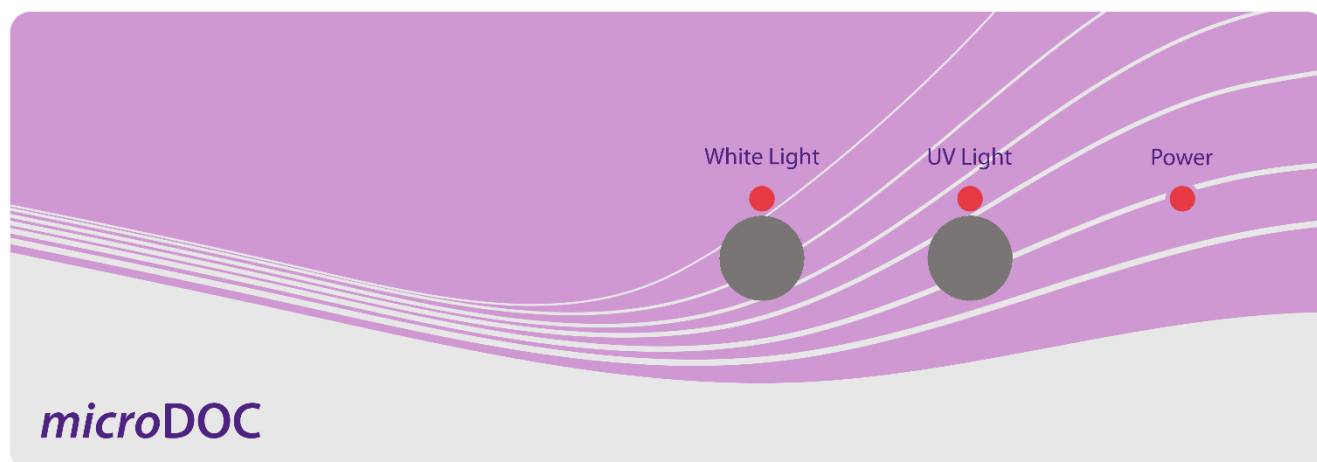
- c. Under picture style, select "Monochrome"



- d. Return to shooting mode

Operation

Front Panel



Toggle the internal white lighting, used for gel placement and visible imaging.

Toggle the UV transilluminator light on and off

Turning on the system

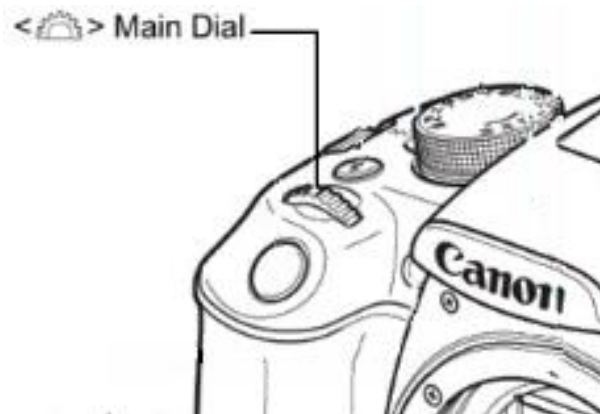
Turn on the system by plugging in the power cable, turning the mains power on, and moving the red rocker switch at the rear of the system to the on position.



Agarose gel Imaging

To Image a fluorescently stained agarose gel, follow the steps below:

1. Turn on the system, camera and transilluminator.
2. Ensure the camera mode is set to M as shown previously.
3. Press the Live view button to display the camera image on the screen.
4. Open the microDOC door (if a UV transilluminator is connected, this will automatically shut off when the door is opened).
5. Place the gel in the imaging area, if more light is needed for placement, toggle the white light with the button shown above.

6. Close the microDOC door and switch off the white light. Select the appropriate filter on the filter slider.
7. Turn on the UV light source with the button on the front of the unit.
8. Use the camera lens to zoom in and out by rotating the main body of the lens.
9. Change the exposure time as necessary, by rotating the dial on the front of the camera:



10. Capture the Image by pressing the shutter button halfway to autofocus, and then fully once the "focus confirmed" noise is heard.
11. At high zoom levels, the autofocus may struggle to focus, in this case change the lens to manual focus by operating the switch on the side of the lens and rotating the focus wheel manually.
12. Press  button and button and key to view the pictures on the memory card full-frame in the monitor. Press  button again to return image shooting mode
13. When finished capturing image, please switch the camera off, and then turn off UV Transilluminator and main power.
14. Remove the gel from the Hood.
15. Clean the UV transilluminator and dry the filter area. For more detailed information, please consult the instruction manual of UV transilluminator.

Troubleshooting

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, please contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem. Contact support@cleaverscientific.com

Problem	Solution
Screen doesn't light on	Check if main power switch is switched on There is an LED on the upper right side. Please check if the light is on. If not, press "Screen power switch"
No Signal from Camera	Please check if the camera is turned on. Check if power wire to camera is properly connected. Check if HDMI cable to camera is properly connected.
Light lamp doesn't light on	Check if white light lamp switch is switched on.

Ordering information

Gel Documentation System	System only	System With 1D Software
microDOC	CSL-MICRODOC	CSL-MICRODOC1D
microDOC System with UV Transilluminator (UVT312)	CSL-MDOCUV312	CSL-MDOCUV3121D
microDOC System with UV Transilluminator (UVT254)	CSL-MDOCUV254	CSL-MDOCUV2541D
microDOC System with UV Transilluminator (UVT365)	CSL-MDOCUV365	CSL-MDOCUV3651D
microDOC System with UV Transilluminator (UVT254/312)	CSL-MDOCUV254/312	CSL-MDOCUV254/3121D
microDOC System with UV Transilluminator (UVT254/365)	CSL-MDOCUV254/365	CSL-MDOCUV254/3651D
microDOC System with UV Transilluminator (UVT312/365)	CSL-MDOCUV312/365	CSL-MDOCUV312/3651D
microDOC Basic System with lift-off dark room hood and camera only	CSL-MDOCBASIC	CSL-MDOCBASIC1D
Accessories		
Mitsubishi Thermal Printer for use with PC - 110 - 240V	CSL-PRINTUSB	
microDOC ethidium bromide filter	CSL-MDOCEB	
microDOC blue light filter	CS-FSG-58	
Replacement printer paper	CSL-PRTPAP	
UV to white light conversion screen for transilluminator	CSL-UVSCRN	
White light box for Micro doc	CSL-MDOCWLB	

Warranty

The Cleaver Scientific Ltd. (CSL) units have a warranty against manufacturing and material faults of twelve months from date of customer receipt.

If any defects occur during this warranty period, CSL will repair or replace the defective parts free of charge.

This warranty does not cover defects occurring by accident or misuse or defects caused by improper operation.

Units where repair or modification has been performed by anyone other than CSL or an appointed distributor or representative are no longer under warranty from the time the unit was modified.

Units which have accessories or repaired parts not supplied by CSL or its associated distributors have invalidated warranty.

CSL cannot repair or replace free of charge units where improper solutions or chemicals have been used.

If a problem does occur, then please contact your supplier or Cleaver Scientific Ltd:

Cleaver Scientific Ltd.

Unit 41, Somers Road Industrial Estate

Rugby, Warwickshire, CV22 7DH

Tel: +44 (0)1788 565300

Email: info@cleaverscientific.com

