

runDOC
Gel Documentation System for the
runVIEW Real-Time Horizontal
Electrophoresis Systems

Instruction manual

CSL-RVGELDOC



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Version 01B / G15
February 14th, 2013

Packing list

Included with the CSL-RVGELDOC:

- 1x Canon G15 Digital Camera
- 1x Lens Adaptor
- 1x runDOC amber filter
- 1x runDOC orange filter
- 1x Dark Room with Extractor Fan and Cable
- 1x runDOC Instruction Manual

Warning

The runDOCgel documentation system has been thoroughly tested and found to comply within the limits of CE regulation. This system is RoHS compliant to meet current environmental directives. These directives are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can 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 may 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. Accordingly, this unit must only be operated by fully qualified personnel adhering to the guidelines laid out within this instruction manual. Although this unit is equipped with all necessary safety features against abuse and accidental failure, caution should always be exercised when working with electrical equipment. Any individual intending to use this instrument should read the entire manual thoroughly before operation.

1. Read the instruction manual thoroughly before use.
2. Never touch the power outlets with any conductive object (e.g. naked metal wire) other than properly insulated power supply cables.
3. Do not spill liquid or insert metal objects inside the power supply.
4. Never block the ventilation holes or place the unit in any enclosure unless there is adequate ventilation; never expose the power supply to a direct heat

source.

5. Never touch any part of the power supply assembly (i.e. power supply, cables or electrophoresis tank) before switching OFF the power supply.
6. Never manipulate with wet hands.
7. Do not connect to ground any of the power outputs or the buffer within the electrophoresis tank; the power outputs should be only connected to an insulated electrophoresis tank equipped with a safety cover.
8. Do not connect any power supplies in series or in parallel.
9. Never open the back plate nor remove the cover, otherwise an electric shock may result. Repairs should only be made by the manufacturer or a service technician authorised by the manufacturer.
10. Never use this power supply if the safety cover is not in position correctly.
11. Do not use the unit if there is any sign of damage to the external tank or cover. Contact the manufacturer or supplier immediately to replace or repair any damaged parts.
12. Never use the power supply in the presence of flammable or combustible material as fire or explosion may result.
13. Ensure that the power supply is only connected to an earthed power line. Do not cut and splice the power line. When removing the power cord from the wall, unplug it by holding the plug attachment and not by pulling the cord. Do not hold the plug with wet hands or gloves.

Environmental Conditions

This unit may only be installed and operated only under the following environmental conditions:

1. For indoor use only
2. Relative humidity: $\leq 95\%$
3. Atmospheric pressure: 75 kPa – 106 kPa
4. Altitude: ≤ 2000 metres
5. Operating temperature: ambient to 40°C
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to $\pm 10\%$ of the normal voltage

This apparatus is rated **POLLUTION DEGREE 2** in accordance with IEC 664. **POLLUTION DEGREE 2**, states that: “Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected”.

Care and Maintenance:-

The units should only be cleaned with the following:-

- A damp cloth wet with warm water, containing a low concentration of soap or other mild detergent.
- The units should not be left in detergents for more than 30 minutes.
- The units should never come into contact with the following cleaning agents, these will cause irreversible and accumulative damage:-
- Acetone, Phenol, Chloroform, Carbon tetrachloride, Methanol, Ethanol, Isopropyl alcohol
- Alkalis.

Rnase Decontamination

- This can be performed using the following protocol:-
- Clean the units with a mild detergent as described above.
- Wash with 3% hydrogen peroxide (H₂O₂) for 10 minutes.
- Rinsed with 0.1% DEPC- (diethyl pyrocarbonate) treated distilled water,
- Caution: DEPC is a suspected carcinogen. Always take the necessary precautions when using.
- RNaseZAP™ (Ambion) can also be used. Please consult the instructions for use with acrylic gel tanks.

Symbols



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 to minimise pollution, please recycle this unit.

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Section 1 Introduction

1.1 Overview - runDOC

runDOC is a portable, light-weight gel documentation system designed for use with runVIEW -an innovative new system designed for real-time size fractionation and recovery of nucleic acids. runDOC comprises a dark-room hood mounted with a 12.1 megapixel compact digital camera to capture images of nucleic acid gels stained with EtBr, SYBR and runSAFE. The runDOC dark-room may be placed directly over the RVMSCHOICE system located on the base unit of the runVIEW system during and after electrophoresis. The runVIEW base unit includes an integrated power supply and blue LED gel illuminator. The blue light LED illuminator is used as the excitation source for the gel located within the tank. Following excitation the light emitted may be then visualised using either the bluVIEW lid (supplied with runVIEW and recommended for EtBr) or the red or amber filters (supplied with runDOC and recommended for EtBr and the runSAFE and SYBR stains). The runDOC also benefits from a small footprint area therefore occupying minimal space within the laboratory.

FEATURES

- ***Lightweight dark-room hood detaches quickly and easily from electrophoresis gel tank and base unit***
- ***Extractor fans in bluVIEW lid and dark-room hood remove condensation to maintain visualisation and resolution during and after electrophoresis***
- ***The gel tank or UV tray may be placed on the viewing platform for immediate observation of the nucleic acid bands within the gel***
- ***High resolution 12.1 megapixel camera with 4GB memory card for storage of images in RAW JPEG formats***
- ***Interchangeable amber, orange and bluVIEW filters for full flexibility***



Camera with optional battery charger cable

Camera Holder and amber emission filter slot

Lift-on lift-off dark room hood

runVIEW base unit with integrated power supply and blue LED illuminator

Front view



Camera with optional battery charger cable

Camera Holder and amber emission filter slot

Handles for lift-on lift-off dark-room hood

Dark-room extractor fan for use with amber filter / cable reel

Inlet port for power supply connectors to connect gel tank to

Outlet port for extractor fan and mains power cables from runVIEW base unit

Rear view

1.2 Overview - runVIEW

The runVIEW real-time horizontal gel electrophoresis system includes everything except chemicals and reagents to run horizontal SYBR- and EtBr-stained gels. This system combines the flexibility and high resolution capability of the MSCHOICE system with the time- and space-saving convenience of a power supply and gel illuminator integrated within one highly compact bench top unit. For gel documentation the runVIEW system may **ONLY** be used with the runDOC. Please contact info@cleaverscientific.com for further information about runVIEW.

FEATURES

- *Detachable electrophoresis gel tank and base unit*
- *bluVIEW lid and built-in extractor fan remove condensation, and maintain visualisation and resolution*
- *Compatible with 15 x 7, 10 and 15cm gel trays*
- *The gel tank or UV tray may be placed on the viewing platform for immediate observation of the nucleic acid bands within the gel*
- *Suitable for runSAFE, SYBR and EtBr stained gels*
- *Blue light illuminator provides instant time-saving visualisation of DNA/RNA band migration*
- *No UV safety equipment required for blue light illumination*

Section 2 Technical Specification

Model name:	runDOC
Camera	
Resolution	Approx. 12.1 megapixel
Image Resolution	640 x 480 up to 4,000 x 3,000
Sensitivity	1/1.7" type high sensitivity CCD
File Format	Design rule for Camera File system, DPOF (version 1.1) compliant
Data Type	Still images: Exif 2.3(JPEG), RAW (CR2)
Dynamic range	Yes
Exposure range	Yes
Lens	
Focal Length	6.1 (W) – 30.5 (T) mm (35mm film equivalent: 28 (W) - 140 (T) mm)
Maximum Aperture	f/1.8 (W) - f/2.8 (T)
Dark Room	
Camera Holder Material	Polyoxymethylene (POM)
Darkroom Material	Ebony acrylic
Darkroom Dimensions	H:40cm W:34cm L:19.5cm
Weight	Approx. 0.8Kg

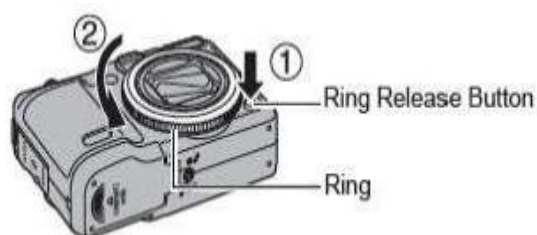
Section 3 Installation Instructions

Place the runVIEW and runDOC systems on a sturdy and level, dry surface. Follow the rest of the installation instructions below to set up the digital camera within the runDOC system. The runVIEW system may be set up as described in the runVIEW manual (please contact info@cleaverscientific.com for a copy).

3.1 Assembly and installation of the digital camera

Step 1 Assemble the camera and lens adaptor

Unpack the camera and lens adaptor. Attach the lens adaptor onto the digital camera, and then rotate the lens anti-clockwise to fix both parts.



1. Press ring release button and lift off the ring



2. Prepare lens adaptor



3. Fix the lens adaptor to camera

Step 2 Camera installation

Carefully place the camera onto the camera holder, aligning the screw hole at the bottom of camera with the screw protruding from the holder. Secure the camera by tightening the knob on the side of the camera holder.



Step 3 Assemble the filter*

runDOC amber and red filters are provided as standard for visualisation of SYBR (amber), runSAFE (amber, orange) and EtBr (orange) stained gels. These filters are interchangeable and should only be used in lieu of the bluVIEW filter lid and not in addition to it. Insert the filter into the emission filter slot just below the camera holder.

**Note: Remember to insert the emission filter with the indentation within the filter holder facing downwards.*



runDOC Amber Emission Filter

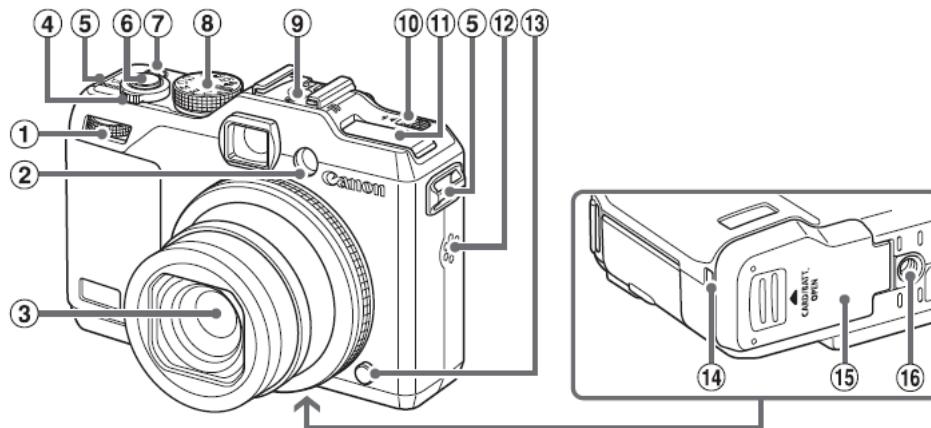


runDOC Orange Emission Filter

Push emission filter holder into slot as shown with indentation facing downwards. The emission filter holder will click once it is in the correct position.

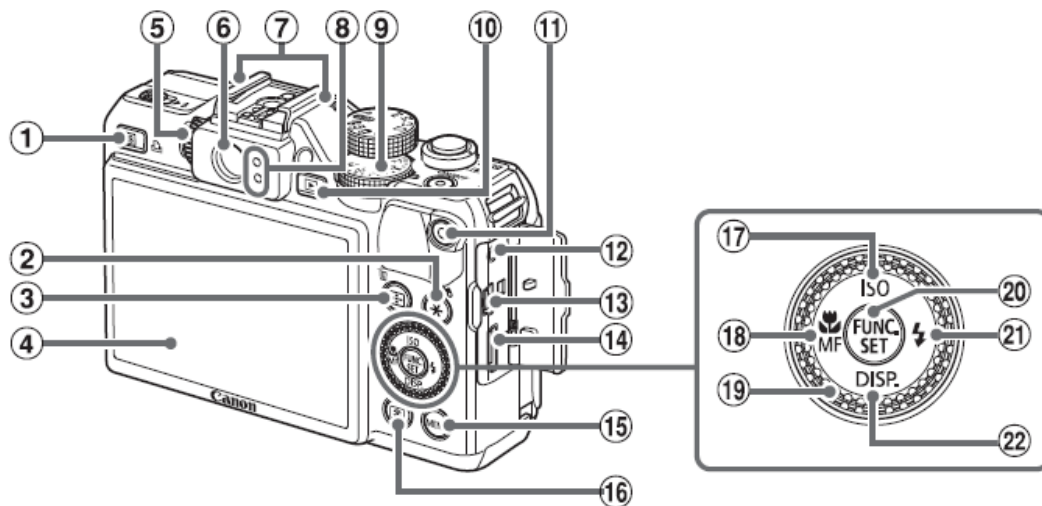
Step 4 Camera Set-Up Menu

(A)



- | | |
|-----------------------------|-----------------------------|
| ① Front dial | ⑦ Power button/lamp |
| ② Lamp | ⑧ Mode dial |
| ③ Lens | ⑨ Hot shoe |
| ④ Zoom lever | ⑩ <▶⚡ (Flash up)> switch |
| Shooting: <📷 (telephoto)> / | ⑪ Flash |
| <📷 (wide angle)> | ⑫ Speaker |
| Playback: <Q (magnify)> / | ⑬ Ring release button |
| <📷 (index)> | ⑭ DC coupler cable port |
| ⑤ Strap mount | ⑮ Memory card/battery cover |
| ⑥ Shutter button | ⑯ Tripod socket |

(B)



- | | |
|---|---|
| ① <S> (Shortcut) / <P> (Direct print) button | ⑫ Remote terminal |
| ② <X> (AE lock/FE lock) / <OVL> (Filtering image display) button | ⑬ AV OUT (Audio/video output) / DIGITAL terminal |
| ③ <AF-ON> (AF Frame Selector) / <Erase> (Single image erase) button | ⑭ HDMI™ terminal |
| ④ Screen (LCD monitor) | ⑮ <MENU> button |
| ⑤ Diopter adjustment dial | ⑯ <METERING> (Metering) button |
| ⑥ Viewfinder | ⑰ <ISO (ISO speed)> / Up button |
| ⑦ Microphone | ⑱ <MACRO> (Macro) / <MF (Manual focus)> / Left button |
| ⑧ Indicator | ⑲ Control dial |
| ⑨ Exposure compensation dial | ⑳ FUNC./SET button |
| ⑩ <PLAYBACK> (Playback) button | ㉑ <FLASH> (Flash) / Right button |
| ⑪ Movie button | ㉒ <DISP. (Display)> / Down button |

(C)



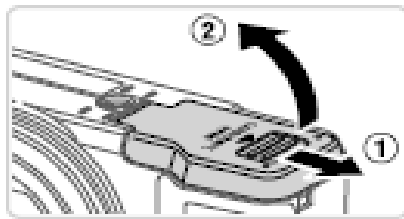
- Turning the control dial is one way to choose setting items, switch images, and perform other operations. Most of these operations are also possible with the <▲><▼><◀><▶> buttons.

3.2 Camera Preparation

Please review all function keys in **Step 4 Camera Set-Up Menu** before

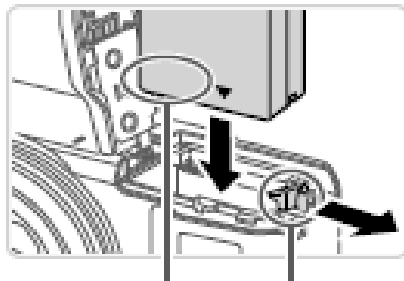
installation.

Inserting the Battery and Memory Card



1 Open the cover.

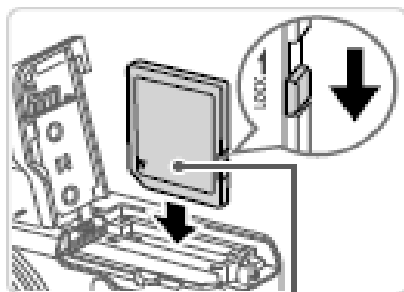
- Slide the cover (①) and open it (②).



Terminals Battery Lock

2 Insert the battery.

- While pressing the battery lock in the direction of the arrow, insert the battery as shown and push it in until it clicks into the locked position.
- To remove the battery, press the battery lock in the direction of the arrow.

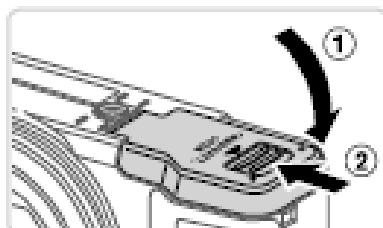


Label

3 Check the card's write-protect tab and insert the memory card.

- Recording is not possible on memory cards with a write-protect tab when the tab is in the locked (downward) position. Slide the tab up until it clicks into the unlocked position.
- Insert the memory card facing as shown until it clicks into the locked position.
- To remove the memory card, push it in until you feel a click, and then slowly release it.

Install the SD card as shown below (Step 4A Item 15).



4 Close the cover.

- Lower the cover (①) and hold it down as you slide it, until it clicks into the closed position (②).

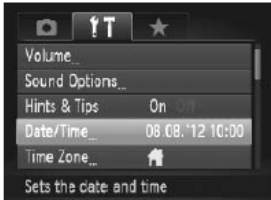
The date and time setting screen will appear when using the camera for the first time.

Set the date and time as shown below:



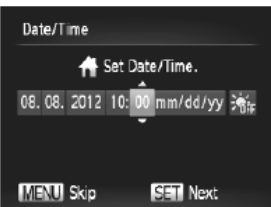
1 Access the camera menu.

- Press the <MENU> button.



2 Choose [Date/Time].

- Move the zoom lever to choose the [T] tab.
- Press the <▲><▼> buttons or turn the <DISP> dial to choose [Date/Time], and then press the <FUNC/SET> button.



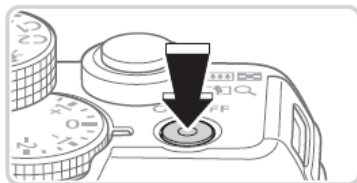
3 Set the date and time.

- Press the <◀><▶> buttons to choose an option.
- Press the <▲><▼> buttons or turn the <DISP> dial to specify the date and time.
- When finished, press the <FUNC/SET> button.



Buttons

3.2.1 Camera Shooting Menu



Press the power button to turn on the camera (Shown in **Step 4 B Item 11**).

This camera has three custom modes (C1, C2, and M) that may be selected via the Mode dial Switch, which also allows three different custom settings to be saved. We advise setting **C1 mode for black & white photographs** (e.g. EtBr) and the **M mode for colour photographs**.

3.2.2 Setting M Mode (for colour photographs)

Use the mode dial to switch to M (Please see **Step 4 A Item 7**)

1. Use the mode dial to switch to M.



Press MENU () to enter.

Change Shooting Settings and set the parameters as follows :

Menu Item	Setting
AF Frame	FlexiZone
Digital Zoom	OFF
AF-Point Zoom	OFF
Servo AF	OFF
Continuous AF	ON
AF-assist Beam	OFF
MF-point Zoom	ON
Safety MF	ON
Flash Control	---
High ISO NR	Standard
Spot AE Point	AF Point
Wind Filter	Off
Review	3 Sec.
Review Info	OFF
Blink Detection	OFF
Custom Disp.	---
Reverse Disp.	ON
IS Mode	Continuous
Converter	NONE
Date Stamp	OFF/Date/Date & Time
Set   Func.	---
Set Shortcut Button	----
Save Setting	C1

**After all parameters have been set as above, save the setting to the C1 mode.
Continue to setup the C1 mode for Black and White images as shown below (Do not turn off the Camera)**

3.2.3 Setting the C1 Mode (for Black and White images)

1. Switch the mode dial to the C1 mode



Press FUNC.SET() Button to change image colour as follows:



1 Choose JPEG .

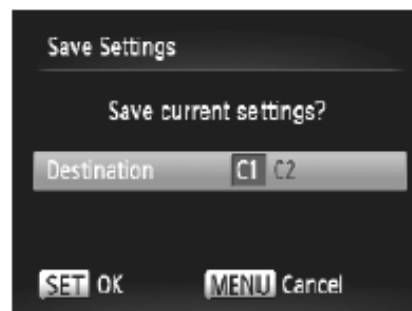
- After pressing the  button, press the  buttons to choose JPEG .

2 Choose an option.

- Press the  buttons or turn the  dial to choose  or , then press the  button.

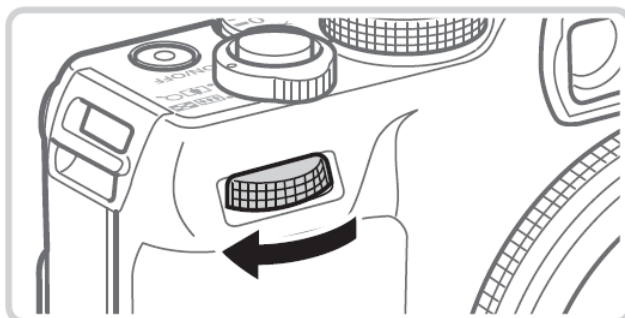


Press MENU () button to Save Settings to C1



3.2.4 Setting Shutter Speed

2. To adjust the shutter speed, turn the Front Dial located at the front of the camera



Shutter speed ranges from 1/2000 to 15"

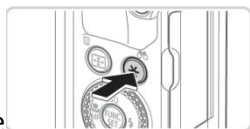
2" indicates 2 seconds

The longer the time the more light enters the camera, and vice versa. Please see the recommended shutter speeds below.

Recommended starter setting for runDOC

DNA Sample	1" or longer
------------	--------------

3.2.5 Setting the Aperture Value



1. Press the  key
2. Use the Control Dial to adjust the aperture value



- Turning the control dial is one way to choose setting items, switch images, and perform other operations. Most of these operations are also possible with the     buttons.

3. Aperture Value is expressed as an F-stop value (e.g. F2.8). The smaller the F-stop number, the larger the aperture (lens opening) and vice versa. Aperture Values range from F1.8 to F8.0. Suggested settings are below:

Recommended starter setting for runDOC

DNA Sample	F2.8
------------	------

3.2.6 Setting Metering Mode



- Press the  button, choose the desired option (either press the   buttons or turn the  dial), and then press the  button again.
- ▶ The option you configured is now displayed.

There are three metering modes:

 Evaluative	For typical shooting conditions, including backlit shots. Automatically adjusts exposure to match the shooting conditions.
 Center Weighted Avg.	Determines the average brightness of light across the entire image area, calculated by treating brightness in the central area as more important.
 Spot	Metering restricted to within the  (Spot AE Point frame). You can also link the Spot AE Point frame to the AF frame (see below).

Recommended setting for runDOC

DNA Sample	Evaluative
------------	------------

3.2.7 Setting ISO Speed



- Press the <▲> button, choose an option (either press the <◀><▶> buttons or turn the <⦿> dial), and then press the <FUNC SET> button.
- ▶ The option you configured is now displayed.

- ISO values range from ISO 80–12800; 'Auto' selects the ISO setting automatically.

	Automatically adjusts the ISO speed to suit the shooting mode and conditions.	
		For shooting outdoors in fair weather.
		For shooting in cloudy conditions, or at twilight.
		For shooting night scenes, or in dark rooms.
		

Raising the ISO value will increase the brightness of the fluorescent signal.

However, the image may become coarse with increasing ISO value. High ISO values should be set only for gels with a very weak signal.

For more detailed information on the camera set up, please see the *Camera User Guide

Recommended setting for runDOC

DNA Sample	ISO AUTO
------------	----------

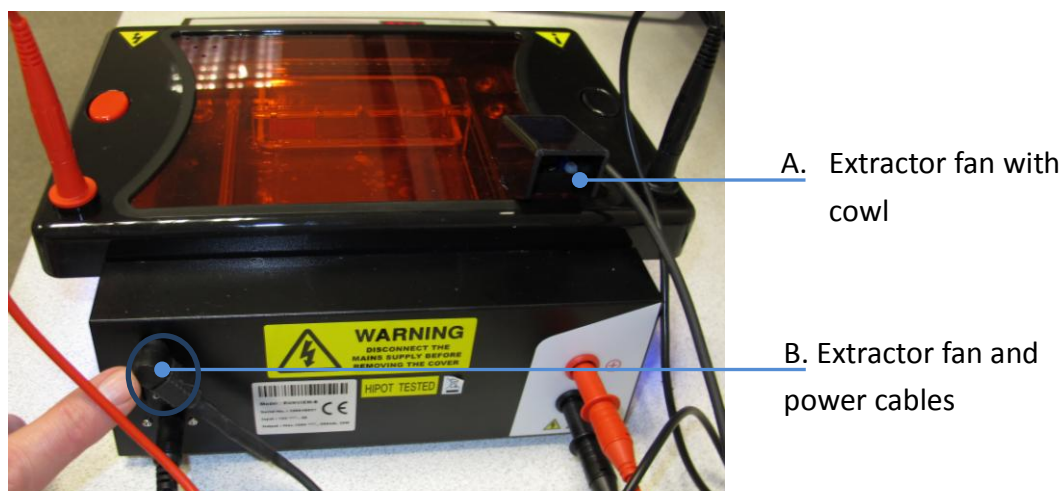
Section 4 Operation Instructions

Set up the runVIEW system for electrophoresis as described in Section 4 of the runVIEW manual (manuals are available on request from info@cleaverscientific.com).

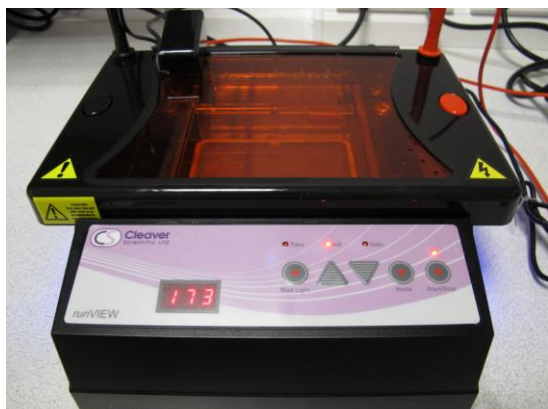
Condensation caused by heat generated from the power supply or blue light illuminator is the biggest obstacle to successful gel visualisation and documentation both during and after electrophoresis.

Accordingly, Cleaver Scientific recommends the application of the following extractor fan options during electrophoresis and afterwards for gel documentation.

Option1: Using the blueVIEW lid to view EtBr gels during electrophoresis



- a. Once the nucleic acid samples have been loaded (see runVIEW manual; or contact info@cleaverscientific.com), connect the extractor fan cable to the rear of the runVIEW base unit and depress the mains power switch. The extractor fan cable extends from the cowl appended to the bluVIEW lid.



- b. Once the mains power switch is on, the fan will start automatically.

At the end of the electrophoretic run, EtBr stained gels may be viewed directly within the gel tank with the extractor fan on by depressing the **blue light**



This may be done either once to activate the blue light source for 10 seconds, to monitor the extent of band migration, or for at least 3 seconds to provide continuous blue light illumination and real-time visualisation of band migration.

N.B. For well-lit areas, it may be necessary to use the runDOC dark-room hood as described in Option below.

Option 2: Using the bluVIEW lid as an emission filter to view EtBr and runSAFE stained gels for gel documentation

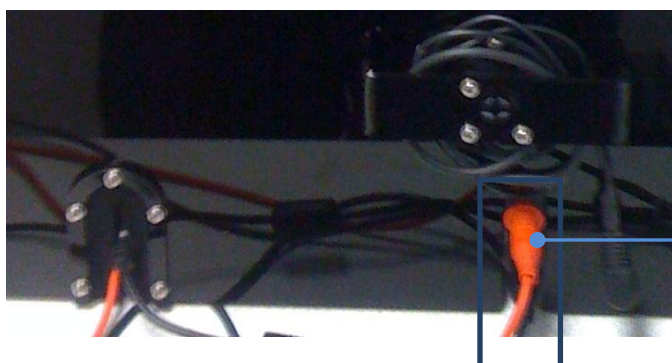
The bluVIEW lid may be used as an emission filter for gel documentation using the runDOC dark-room hood. This necessitates blue light excitation with the gel in situ within the tank and buffer. Application of the extraction fan is still recommended.

- a. With the bluVIEW lid extractor fan still on and connected to the base unit, carefully place the runDOC dark room directly over the runVIEW system. **N.B. The camera may be used to view the progress of electrophoresis as well for documentation.**

- b. Ensure that the mouse-hole slots at the rear of the dark-room hood are aligned so that they fit comfortably around the mains power and extractor fan cable plugs connected to the rear of the base unit, as shown overleaf. The electrode plugs may also remain inserted at the rear of the base unit to continue with electrophoresis.
- c. Make sure that the cowl from the bluVIEW lid is in line with the extractor fan outlet at the rear of the dark-room cabinet so that condensation continues to be removed once the dark-room hood is in position.



Align mouse hole of dark room hood with extractor fan and mains power cables at rear of unit



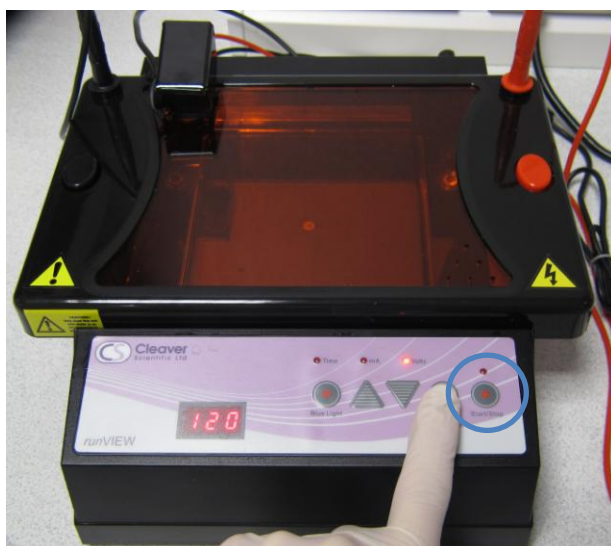
Reinsert the power cables if further electrophoresis is deemed necessary. The gel may be viewed through the camera with the blue LED switched on, if required.

- d. Switch on blue LED illuminator by depressing for at least 3 seconds the  button on the front panel of the runVIEW base unit. This will provide continuous blue light illumination.
- e. Switch on the camera to visualise the nucleic acid bands within the gel for gel documentation.

Option 3: Using the runDOC dark-room hood to view gels in situ within the RVMSCHOICE tank (without the blueVIEW lid) by using the runDOC amber or orange emission filters.

runDOC amber and orange filters are provided as standard for visualisation of SYBR (amber), runSAFE (amber, orange) and EtBr (orange) stained gels. These filters are interchangeable and should only be used in lieu of the bluVIEW filter lid and not in addition to it. Insert the filter into the emission filter slot just below the camera holder.

Note: Remember to insert the emission filter with the indentation within the filter holder facing downwards as shown in **Step 3 Section 3.1.*

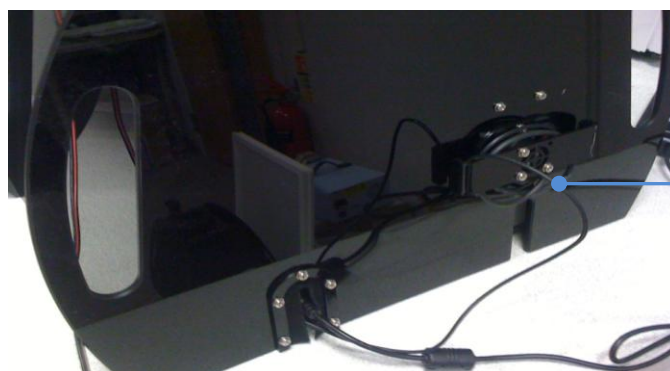


- a. Press the start / stop button  on the runVIEW front panel to switch off the power supply within the base unit.
- b. Disconnect the red and black electrode cables at the rear of the base unit and remove the lid to expose the buffer and gel. Put the lid to one side away from the immediate work area.
- c. With gel tank located on the base unit, connect the power cable from the fan on the runDOC dark-room hood to the fan power inlet at the rear of the base unit, just above the mains power cable.
- d. Ensure that the left-hand mouse-hole slot at the rear of the dark-room

hood is aligned to fit comfortably around the mains power and extractor fan cable plugs connected to the rear of the base unit, as shown below.



Align mouse hole of dark room hood with extractor fan and mains power cables at rear of unit



The fan cable at the rear of the runDOC may be unraveled from the reel, making it easier to locate the dark-room hood around the base unit.

- e. Switch on blue LED illuminator by depressing, for at least 3 seconds,



the Blue Light button on the front panel of the runVIEW base unit. This will provide continuous blue light illumination.

- f. Switch on the camera to visualise the nucleic acid bands within the gel for gel documentation.

Option 4: Using runVIEW as a blue light illuminator in tandem with the runDOC hood to image gels directly within the gel tray

1. With runVIEW placed on an even bench surface, switch it on using the mains power button located at the rear of the base unit.
2. Using gloved hands, place the gel tray containing the gel onto the platform within the base unit. Do not remove the gel tray, because the gel will then fall below the level of the blue LED and will therefore not be illuminated.
3. Place the runDOC dark-room hood directly over the runVIEW base unit as described in **Option 3**. Application of the extractor fan on the dark-room hood is recommended to remove any condensation generated by the warm gel.
4. Switch on the blue light by pressing the  Blue Light button located on the front panel. Depress the blue light button for at 3 seconds for continuous illumination.
5. Ensure that the correct emission filter is in position before switching on the camera to begin gel documentation.

Section 5 Troubleshooting and Maintenance

Many operating problems may be solved by reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. If these suggestions fail to resolve the problem, contact our SERVICE DEPARTMENT or the Cleaver Scientific distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Weak signals or no image

- 1 Check the camera battery for power, recharging using the mains charger if necessary.
- 2 Close aperture ring then reduce the aperture (F) value to increase amount of light entering the camera.

Insufficient exposure time

- 1 Increase the exposure time ("") to improve intensity of the signal.

Encountering Problems

1. Check the troubleshooting section.
2. Call Technical Service or e-mail to info@cleaverscientific.com
3. If it is necessary to return unit for repair, please contact Cleaver Scientific or the distributor for a Return Authorisation Number and shipping instructions. The unit will be repaired and returned to you as quickly as possible.

Maintenance

Each runDOC system uses all solid-state components and should require no maintenance or recalibration under normal use. Cleaning should be restricted to application of a soft cloth. Solvents should never be used. If the unit is to be returned for repair, contact our **SERVICE DEPARTMENT** or your local authorised Cleaver Scientific distributor.

info@cleaverscientific.com
www.cleaverscientific.com

Section 6 Ordering Information

Ordering Information	
<i>runDOC gel documentation system</i>	
CSL-RVGELDOC	runVIEW gel documentation hood with 10MP camera
CSL-CAMCHARGER	Optional mains charger cable for 10MP camera
<i>runVIEW real-time horizontal electrophoresis system</i>	
CSL-RVMSCHOICE7	runVIEW system complete with 15 x 7cm gel tray.
CSL-RVMSCHOICE10	runVIEW system complete with 15 x 10cm gel tray.
CSL-RVMSCHOICE15	runVIEW system complete with 15 x 15cm gel tray.
CSL-RVMSCHOICETRIO	runVIEW system complete with 15 x 7, 15 x 10 and 15 x 15cm gel trays.
CSL-RVBSBVLID	runVIEW base station & bluVIEW lid.

Section 7 Warranty

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

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

This warranty does not cover defects resulting from 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.

Warranty is rendered invalid for those units which contain accessories or repaired parts not supplied by CSL or its associated distributors.

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 CSL on: -

Cleaver Scientific Ltd.

Unit 4 Triton Park

Swift Valley

Brownsover Road

Rugby

CV21 1SG

Tel: +44 (0)1788 565300

Fax: +44 (0)1788 552822

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