# runVIEW Real-Time
# Horizontal System

# runVIEW Real-Time Horizontal Electrophoresis Units

## Instruction Manual

**Catalogue Numbers**

CSL-RVMSCHOICE7

CSL-RVMSCHOICE10

CSL-RVMSCHOICE15

CSL-RVMSCHOCIETRIO

Record the following for your records:

Model _____

Catalogue No. _____

Date of Delivery _____

Warranty Period _____

Serial No. _____

Invoice No. _____

Purchase Order No. _____

# Contents

# Safety Information

The runVIEW real-time horizontal DNA electrophoresis system has been thoroughly tested and found to comply within the limits of CE regulation. It has been manufactured using the latest technology and does not require maintenance. When used correctly this unit poses no particular health risk, although it can deliver dangerous voltage levels if used incorrectly. Accordingly, this power supply must only be operated by fully qualified personnel adhering to the guidelines laid out within this instruction manual. Although this power supply is equipped with all necessary safety features against abuse and accidental failure, caution should always be exercised when working with high voltage 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: ≤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 ±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".

## Symbols

The symbols used on this unit are explained below. Indicates the potential for electric shock. Consult the manual to avoid possible personal injury or instrument damage.

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.

# Packing List

All Models Include:

| | |
|---|---|
| **Base Station & Lid** | CSL-RVBSBVLID |
| **Tank** | MS15TANK |
| **Cable** | CSL-CAB |
| **Combs** | 1 x MS15-4/16MC-3<br>1 x MS15-20/28MC-3<br>2 x MS15-4/16MC-1<br>4 x MS15-20/28MC-1 |

Specific models include:

| | **CSL-RVMSCHOICE7** | **CSL-RVMSCHOICE10** | **CSL-RVMSCHOICE15** | **CSL-RVMSCHOICETRIO** |
|---|---|---|---|---|
| **Tray** | MS15-UV7 | MS15-UV10 | MS15-UV15 | MS15-UV7, MS15-UV10, MS15-UV15 |
| **Casting Dams** | MS15-UVDAM | MS15-UVDAM | MS15-UVDAM | 3 x MS15-UVDAM |

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 customers have received this instrument package. Please contact Cleaver Scientific immediately regarding this issue. If no response within such period is received from the customer, Cleaver Scientific will no longer be liable for replacement/damaged parts.**

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

# Specifications

| **runVIEW Viewing Dock** | | | |
|---|---|---|---|
| **Blue Light Wavelength** | 470nm | **Timer** | 1-999 minutes with alarm |
| **Voltage/ Resolution** | 25-150V / 1V | **Safety Device** | No load detection |
| **Current/ Resolution** | 300mA / 1mA | **Operating Temperature** | Ambient to 40°C |
| **Power** | 30 W | **Dimensions** | 293 x 220 x 80 mm |
| **Operating Mode** | Constant Voltage or Current | **Rated Voltage** | 100-240V, 50/60Hz |
| **runVIEW Gel System** | | | |
| **Gel Dimensions (W X L)** | 15 X 7, 15 x 10 & 15 X 15cm | **bluVIEW Lid Design** | Orange spectral emission filter with condensation-free viewing pane (Safe dyes – e.g. runSAFE); Red version for EtBr |
| **Unit dimensions (W X D X H)** | 26.5 X 17.5 X 9cm | **Combs** | - 1 x MS15-4/16MC-3<br>- 1x MS15-20/28MC-3<br>- 2x MS15-4/16MC-1<br>- 4x MS15-20/28MC-1 |
| **Buffer Volume** | 500ml | **Comb Thickness** | 1 & 3mm |

# Operating Instructions

## Overview

runVIEW is an innovative system designed for real-time size fractionation and recovery of nucleic acids. runVIEW can maximise the efficiency of DNA recovery from EtBr and SYBR stained gels by minimising the number of steps involved in post-electrophoretic purification. runVIEW consists of a multiSUB™ MSCHOICE system with bluVIEW lid, containing a spectral emission filter and extractor fan within its viewing pane, and a base unit with integrated power supply and blue LED gel illuminator.

## Installation

Place the runVIEW on a sturdy and level, dry surface. Plug the power cord into the back of the unit and mains power. The system is now ready for use.

## Setting up the Horizontal Gel Tank

*Fitting Electrodes*

- Note the position of the lid on the unit. This shows the correct polarity and the correct orientation of the cables, black is negative and red positive.
- Remove the lid from the unit. Note if the lid is not removed, fitting the cables may result in un-tightening of the gold plug and damage to the electrode.
- Screw the cables into the tapped holes as fully as possible so that there is no gap between the lid and the leading edge of the cable fitting.
- Refit the lid.

*Fitting Loading Guides*

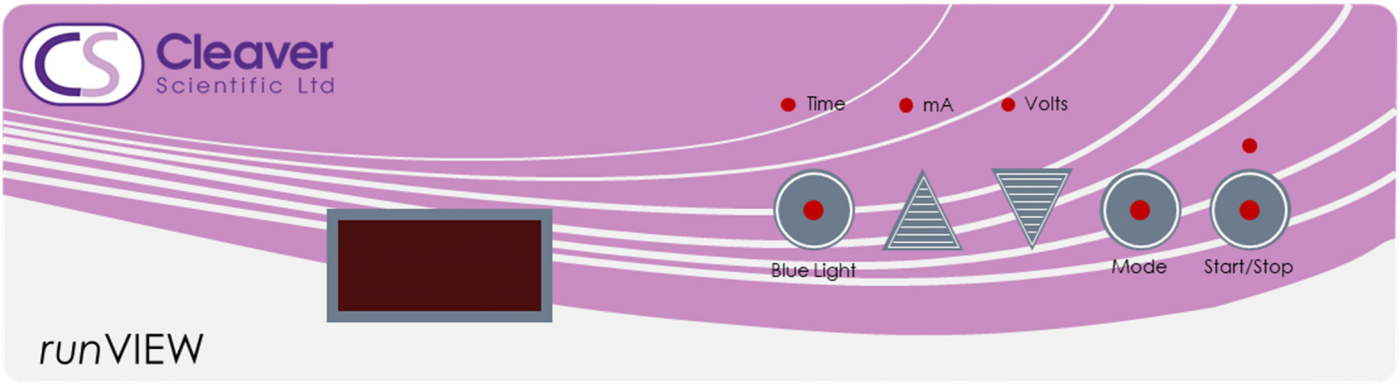
These can be fitted to enhance visibility of the wells if desired. They can be fitted to the white vinyl platform sheet or to the unit itself.

1. Seat the tray in the unit and note the position of the comb grooves. The samples run black to red, but the trays can be used frontward or backwards so ensure that the comb grooves closest to the black electrode are marked.
2. Remove the tray.

3. Peel the back off the loading guide and carefully apply the loading guide directly to the gel platform.

The unit is now ready to be used.

## Control Interface




There are five buttons and four LED indicators on the faceplate.

Each LED indicates the activation status or mode of operation of the unit.

1. 

To select Voltage, Current or Time
2. 

To switch blue light ON or OFF
3. 
Increase selected parameter
4. 
Decrease selected parameter
5. 

Start / stop the program

To set the required voltage, current and time, use the mode button to navigate between these parameters. The active parameter will be indicated by a lit LED.

Use the up and down arrows to set the desired parameters.

Press the Start / stop button to start the electrophoresis run.

To activate the blue light for 10 seconds, press the blue light button once. To permanently activate the blue light, hold the Blue light button for 3 seconds.

## Gel Preparation

The Table below shows the volume of agarose solution required to make the desired agarose gel for each unit tray size. For a standard 0.7% agarose gel, add 0.7 grams of agarose to 100 ml of 1x TAE or TBE solution. The same 1X solution should be used in the tank buffer solution.

| **Tray** | **15 x 7 cm** | **15 x 10 cm** | **15 x 15 cm** |
|---|---|---|---|
| **Gel volume for a 5mm thick gel** | 52.5 mL | 75 mL | 112.5 mL |

1. Add the agarose powder to a conical flask.
2. Add the appropriate amount of 1x TAE or TBE solution from the table above. To prevent evaporation during the dissolving steps below, the conical flask should be covered with parafilm.
3. Dissolve the agarose powder by heating the agarose either on a magnetic hot plate with stirring bar or in a microwave oven. If using the microwave method, the microwave should be set at around a 400 watt or medium setting and the flask swirled every minute. The solution should be heated until all crystals are dissolved. This is best viewed against a light background. Crystals appear as translucent crystals. These will interfere with sample migration if not completely dissolved.

**The gel must be cooled to between 50°C and 60°C degrees before pouring.**

For Real-Time visualisation, mix a compatible DNA stain such as Ethidium Bromide with your agarose gel in the required proportion. This allows DNA to be visualised during the run.

Alternatively, runSAFE DNA stain can be used as the sample loading buffer to enable real-time visualisation.

## Gel Pouring

The multiSUB® range of units allows three different methods of gel casting:

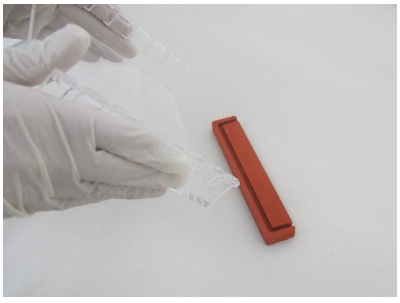
1. Casting Dams
2. Flexicaster
3. Traditional Tape

*Casting Dams*

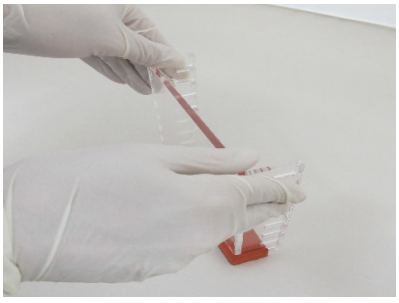
1. To fit the casting dams, place one casting dam on the bench with the groove facing upwards (1). Push the edge of the tray down firmly into the groove (2). Repeat this for the other side (3). The dams should be fitted so that there is no gap between the sides of the tray and the groove in the dams. This will ensure that there is no possibility of gel leakage.
2. Place the comb(s) in the grooves. Each tray has more than one comb grove so that multiple combs can be used. Using multiple combs increases sample number available per gel but decreases run length and care must be taken to ensure that samples from the first wells do not migrate into the lanes of the second comb wells.
3. Pour in the agarose carefully so as not to generate bubbles. Any bubbles that do occur can be smoothed to the edge of the gel and dispersed using a pipette tip.
4. Allow the agarose to set, ensuring that the gel remains undisturbed.
5. Carefully remove the gel casting gates and comb and transfer the gel including tray to the main tank.

*Flexicaster*

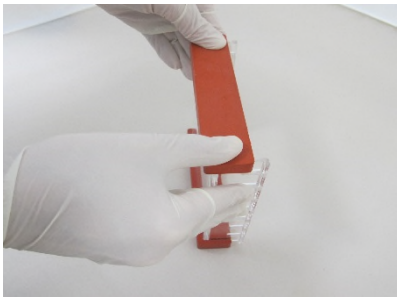
1. Level the Flexicaster base by adjusting the feet so that the bubble is exactly central.



*(1)*

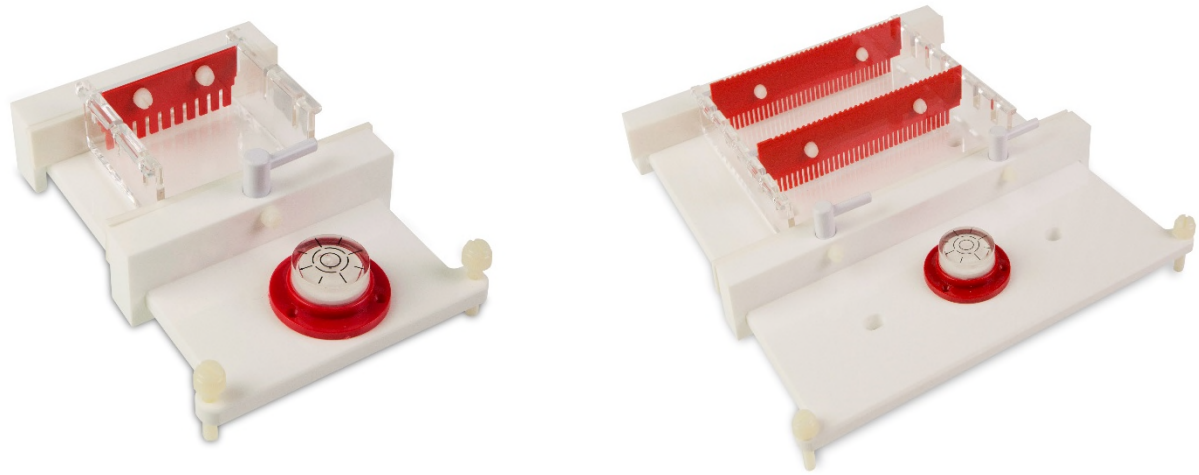


*(2)*



*(3)*

2. Insert the desired length tray into the Flexicaster such that one end of the tray is pushed up and seals against the silicone mat of the permanent end of the Flexicaster.
3. Position the movable end of the Flexicaster so that the silicone mat is pushed against the other end of the tray.
4. Turn the cam so that the silicone mat tightly seals against the side of the tray. Pour in the agarose carefully so as not to generate bubbles. Any bubbles that do occur can be smoothed to the edge of the gel and dispersed using a pipette tip.
5. Allow the agarose to set, ensuring that the gel remains undisturbed.
6. Carefully remove the gel casting gates and comb and transfer the gel including tray to the main tank.



*MS7-FC and MS20-FC Flexicasters*

## *Tape*

1. Autoclave or plastic backed general tape should be used. A length 5cm longer than the width of each end of the tray should be cut. One length should be placed over one end of the tray and stuck m1cm in from the tray edge. This should then be folded, and the edges sealed securely. Repeat for the other end and place onto a level surface for gel pouring.
2. Place the comb(s) in the grooves. Each tray has more than one comb grove so that multiple combs can be used. Using multiple combs increases sample number available per gel but decreases run length

and care must be taken to ensure that samples from the first wells do not migrate into the lanes of the second comb wells.

3. Pour in the agarose carefully so as not to generate bubbles. Any bubbles that do occur can be smoothed to the edge of the gel and dispersed using a pipette tip.
4. Allow the agarose to set, ensuring that the gel remains undisturbed.
5. Carefully remove the gel casting gates and comb and transfer the gel including tray to the main tank.

## Running the Gel

1. Mix the sample to be loaded with sample buffer or runSAFE 6X DNA stain for real-time visualisation.
2. Fill the unit with buffer until the gel is just flooded with buffer. This will give the fastest resolution times. For enhanced quality of resolution of sample, fill the unit to 5mm above the gel.
3. Load the samples into the wells using pipettes. Multi-channel pipettes can be used for loading samples with MC compatible combs, see listing in accessories for identification of these.
4. Carefully place the lid on the tank and connect to the Base Station. Connect the Lid Fan to the runVIEW Base Station.
5. Typically, gels are run at between 90 and 150 volts. However, maximum voltages are indicated on the serial badge of each unit. It should be noted that higher voltages generally give faster but poorer quality sample resolution.

*To operate under constant voltage or constant current modes, adjust the other parameter to the maximum value. For example, to operate under constant voltage, adjust the current to the maximum output of 300mA before running the power supply with the voltage set at the desired output setting.*

# Stain Compatibility

| | | Staining Method | | |
|---|---|---|---|---|
| **Nucleic Acid Stain** | **Relative Performance Between Stains** | **Gel Pre-Staining** | **Gel Post-Staining** | **Sample Staining** |
| **SYBR® Green I (DNA)** | Higher Intensity Bands Observed | ✓ | ✓ | ✓ |
| **SYBR® Green II (RNA)** | Higher Intensity Bands Observed | | ✓ | ✓ |
| **SYBR® Gold** | Higher Intensity Bands Observed | ✓ | ✓ | |
| **Midori Green Direct** | Higher Intensity Bands Observed | | | ✓ |
| **Hydra Green™ Safe DNA Dye** | Higher Intensity Bands Observed | ✓ | ✓ | |
| **HD Green™ DNA Stain** | Higher Intensity Bands Observed | ✓ | ✓ | |
| **runSAFE** | Higher Intensity Bands Observed | | | ✓ |
| **SafeView DNA Stain** | Compatible -Visible Bands Observed | ✓ | | |
| **SYBR® Safe** | Compatible -Visible Bands Observed | ✓ | ✓ | |
| **Midori Green** | Compatible -Visible Bands Observed | ✓ | ✓ | |
| **Midori Green Advanced** | Compatible -Visible Bands Observed | ✓ | ✓ | |
| **EtBr** | Faint Bands Observed* | ✓ | ✓ | |
| **SERVA DNA Stain Clear G** | Faint Bands Observed* | ✓ | | |
| **HealthView™** | Faint Bands Observed* | ✓ | ✓ | |
| **GelGreen™** | Faint Bands Observed* | ✓ | ✓ | |
| **GelRed™** | Faint Bands Observed* | ✓ | ✓ | |

*Compared to the same gel on a UV Transilluminator

## Solutions

**0.5M EDTA stock (500mL)** dissolve in 400 ml distilled water:

- 93.05g EDTA disodium salt

Fill to 500 ml litre final volume with distilled water

**50X TAE stock (1L)** dissolve in 750 ml distilled water:

- 242 g tris base (FW = 121)
- 57.1 ml glacial acetic acid
- 100 ml 0.5 M EDTA (pH 8.0).

Fill to 1 litre final volume with distilled water

**10X TBE stock (1L)** dissolve in 750 ml distilled water:

- 108 g tris base (FW = 121)
- 55 g boric acid (FW = 61.8)
- 40 ml 0.5 M EDTA (pH 8.0)

Fill to 1 litre final volume with distilled water

### Loading Dye

10x sample buffer stock consists of 50% glycerol, 0.25% bromophenol blue, and 0.25% xylene cyanole FF in 1x TAE buffer. Only 1–10 ml of the 10x loading dye should be prepared.

### Ethidium Bromide Solution

Add 10 mg of Ethidium Bromide to 1 ml distilled water.

## References


1. Sambrook, Fritsch, and Maniatis, **Molecular Cloning A Laboratory Manual,** Second Edition, Cold Spring Harbor Laboratory Press, 1989.
2. **Current Protocols in Molecular Biology,** Greene Publishing Associates and Wiley-Interscience, 1989.

# Troubleshooting

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 support@cleaverscientific.com or the Cleaver Scientific distributor in your region for assistance. If troubleshooting is required, please include a full description of the problem.

## Gel Issues

| Problem | Cause | Solution |
|---|---|---|
| **Bands sharp but not enough bands seen** | Gel agarose percentage too high<br>Incomplete digestion | Decrease agarose percentage.<br>Review enzyme activity, digest further. |
| **Band smearing and streaking** | Agarose has improper endosmosis<br>Salt concentration in sample too high<br>Excessive power and heating<br>Sample spilled out of well<br>Incomplete digestion, nuclease contamination, bad enzyme<br>Sample wells cast through the gel. Sample leaks along bottom of running surface | Consult Cleaver Scientific about agarose.<br>Reduce salt concentration to ≤0.1M.<br>Reduce voltage. See electrophoresis instructions.<br>Apply sample carefully. Increase gel thickness for large sample volumes. Adjust comb height.<br>Heat sample. Review enzyme activity. Digest sample further.<br>Comb should be placed to 1 to 2 mm above the base of the running surface. |
| **Curved line or distortion of bands** | Bubbles in sample wells | Remove bubbles prior to electrophoresis. |
| **Curved bands, smiles** | Sample overload | Reduce load. |
| **Differential relative mobilities** | Sample spilled out of wells<br>Unit not levelled | Samples should have proper density. Apply carefully.<br>Level unit. Use a steady work bench. |
| **Gels crack** | Too high voltage gradient, especially with low melting temperature agarose or low gel strength gels | Reduce voltage. Run gel at lower temperature. |
| **High MW bands sharp; low MW bands smeared** | Gel agarose percentage too low | Increase agarose percentage. Switch to polyacrylamide. |
| **Ragged bands** | Sample density incorrect<br>Sample well deformed | See sample application instructions.<br>Carefully remove comb, especially from soft gels. Make sure gel has solidified. |

| | | |
|---|---|---|
| | Excessive power or heating | Cooling soft gels aids in comb removal.<br>Reduce voltage. See electrophoresis instructions. |
| **Slanted lanes (bands)** | Gel not fully solidified<br>Comb warped or at an angle | Gel to solidify for at least 30-45min.<br>Check alignment of comb. |

## runVIEW Issues

| Problem | Cause | Solution |
|---|---|---|
| **No Display / lights** | No AC power. | Check if the power supply is unplugged, or if the AC power source is a problem. |
| | AC power cord is not connected. | Check AC power cord connections at both ends. Use the correct cords. |
| | The fuse has blown. | Replace the fuse |
| **Operation stops** | Electrophoresis leads are not connected to the power supply or the electrophoresis unit; or the circuit is broken in the electrophoresis system. | Check the connections to the power supply and within electrophoresis system to make sure the connection is intact; check the electrodes to make sure they are intact. Close the circuit by reconnecting the cables. Press **START/STOP** to restart the run. |
| | High resistance due to tape left on a pre-cast gel, incorrect buffer concentration, or insufficient buffer volumes in the electrophoresis system. | Make sure that the tape is removed from the pre-cast gel, that the buffers are prepared correctly, and the recommended volume of buffer is added to the electrophoresis unit and is covering the gel. |
|  **Error message** | Over voltage (170V safety limit reached or exceeded). | Press **START/STOP** button to clear the error message. Contact Cleaver Scientific's service department if the problem persists. |
|  **Message** | No load is detected. | (1) Check the connections.<br>(2) Check the buffer condition / buffer Level. |
|  **Alarm message** | Maximum power output reached (30 W). | Warning message for reference. |

# Care and Maintenance

Each runVIEW system uses all solid-state components and should require no maintenance or recalibration under normal use. If the unit is to be returned for repair, contact support@cleaverscientific.com or your local authorised Cleaver Scientific distributor.

## Cleaning Horizontal Units

Units are best cleaned using warm water and a mild detergent. **Water at temperatures above 60°C can cause damage to the unit and components.**

The tank should be thoroughly rinsed with warm water or distilled water to prevent build-up of salts, but care should be taken not to damage the enclosed electrode and vigorous cleaning is not necessary or advised.

Air drying is preferably before use.

**The units should only be cleaned with the following:**

Warm water with a mild concentration of soap or other mild detergent.

Compatible detergents include dishwashing liquid, Hexane and Aliphatic hydrocarbons

The units should not be left to 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 pyro carbonate) 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.

# Ordering information

| Ordering Information | |
|---|---|
| **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. |

## Comb options

| Catalogue No. | Tank | Thickness | Sample Number | Tooth Width (mm) | Volume (ul) |
|---|---|---|---|---|---|
| **MS15-1-0.75** | Choice | 0.75 | 1 | 110 | 371 |
| **MS15-2-0.75** | Choice | 0.75 | 2 | 50 | 169 |
| **MS15-4-0.75** | Choice | 0.75 | 4 | 27 | 91 |
| **MS15-10-0.75** | Choice | 0.75 | 10 | 10 | 34 |
| **MS15-10MC-0.75** | Choice | 0.75 | 10 | 6.5 | 22 |
| **MS15-12-0.75** | Choice | 0.75 | 12 | 9 | 30 |
| **MS15-14MC-0.75** | Choice | 0.75 | 14 | 6.5 | 22 |
| **MS15-16-0.75** | Choice | 0.75 | 16 | 6 | 20 |
| **MS15-20-0.75** | Choice | 0.75 | 20 | 4.75 | 16 |
| **MS15-28MC-0.75** | Choice | 0.75 | 28 | 2.5 | 8 |
| **MS15-35-0.75** | Choice | 0.75 | 35 | 2.2 | 7 |
| **MS15-1-1** | Choice | 1 | 1 | 110 | 495 |
| **MS15-2-1** | Choice | 1 | 2 | 50 | 225 |
| **MS15-4-1** | Choice | 1 | 4 | 27 | 122 |
| **MS15-10-1** | Choice | 1 | 10 | 10 | 45 |
| **MS15-10MC-1** | Choice | 1 | 10 | 6.5 | 29 |
| **MS15-12-1** | Choice | 1 | 12 | 9 | 41 |
| **MS15-14MC-1** | Choice | 1 | 14 | 6.5 | 29 |
| **MS15-16-1** | Choice | 1 | 16 | 6 | 27 |
| **MS15-20-1** | Choice | 1 | 20 | 4.75 | 21 |
| **MS15-28MC-1** | Choice | 1 | 28 | 2.5 | 11 |
| **MS15-35-1** | Choice | 1 | 35 | 2.2 | 10 |
| **MS15-1-1.5** | Choice | 1.5 | 1 | 110 | 743 |
| **MS15-2-1.5** | Choice | 1.5 | 2 | 50 | 338 |
| **MS15-4-1.5** | Choice | 1.5 | 4 | 27 | 182 |
| **MS15-10-1.5** | Choice | 1.5 | 10 | 10 | 68 |
| **MS15-10MC-1.5** | Choice | 1.5 | 10 | 6.5 | 44 |
| **MS15-12-1.5** | Choice | 1.5 | 12 | 9 | 61 |
| **MS15-14MC-1.5** | Choice | 1.5 | 14 | 6.5 | 44 |
| **MS15-16-1.5** | Choice | 1.5 | 16 | 6 | 41 |
| **MS15-20-1.5** | Choice | 1.5 | 20 | 4.75 | 32 |

| | | | | | |
|---|---|---|---|---|---|
| **MS15-28MC-1.5** | Choice | 1.5 | 28 | 2.5 | 17 |
| **MS15-35-1.5** | Choice | 1.5 | 35 | 2.2 | 15 |
| **MS15-1-2** | Choice | 2 | 1 | 110 | 990 |
| **MS15-2-2** | Choice | 2 | 2 | 50 | 450 |
| **MS15-4-2** | Choice | 2 | 4 | 27 | 243 |
| **MS15-10-2** | Choice | 2 | 10 | 10 | 90 |
| **MS15-10MC-2** | Choice | 2 | 10 | 6.5 | 59 |
| **MS15-12-2** | Choice | 2 | 12 | 9 | 81 |
| **MS15-14MC-2** | Choice | 2 | 14 | 6.5 | 59 |
| **MS15-16-2** | Choice | 2 | 16 | 6 | 54 |
| **MS15-20-2** | Choice | 2 | 20 | 4.75 | 43 |
| **MS15-28MC-2** | Choice | 2 | 28 | 2.5 | 23 |
| **MS15-35-2** | Choice | 2 | 35 | 2.2 | 20 |

# Related Products

| Catalogue No. | Product description |
|---|---|
| **nanoPAC-300** | Mini Power supply, 300V, 400mA, 60W -100 -240VAC |
| **nanoPAC-500** | Mini Power supply, 500V, 400mA, 120W -100 -240VAC |
| **POWERPRO300** | MIDI Power Supply, 300V, 700mA, 150 – 100 -240VAC |
| **omniDOCPROSAFE** | OMNIDOC plus Blue LED Epi-illumination Module (OMNIDOC-BL), and 520, 560 & 580nm filters (OMNIDOC-SYBR, -AF560 & -AF580); and White Light Table (OMNIDOC-WLT). Requires a PC or laptop |
| **CSL-AG5** | Agarose Powder 5g, Low EEO |
| **CSL-AG100** | Agarose Powder 100g, Low EEO |
| **CSL-AG500** | Agarose Powder 500g, Low EEO |
| **CSL-AG1000** | Agarose Powder 1000g, Low EEO (2x500g bottles) |
| **CSL-AG2000** | Agarose Powder 2000g, Low EEO (4x500g bottles) |
| **CSL-AG5000** | Agarose Powder 5000g, Low EEO (10x500g bottles) |
| **CSL-AG10KG** | Agarose Powder 10Kg, Low EEO (20x500g bottles) |
| **CSL-LMA5** | Agarose Powder 5g, Low Melting Point |
| **CSL-LMA50** | Agarose Powder 50g, Low Melting Point |
| **CSL-LMA100** | Agarose Powder 100g, Low Melting Point |
| **CSL-HRA100** | Agarose Powder 100g, High Resolution |
| **CSL-HRA500** | Agarose Powder 500g, High Resolution |
| **CSL-AGTAB** | Agarose Tablet 100g, Low EEO (200 x 0.5g tablets, supplies as 20 blister packs of 10 x 0.5g tablets) |
| **CSL-RUNSAFE** | CSL-RUNSAFE - Package: 1 ml/vial |
| **CSL-TBEP** | Powdered Tris-Borate-EDTA Running Buffer- 10 sachets (1litre/pk) |
| **TBE10X1L** | Cleaver Buffer Tris-Borate-EDTA Running Buffer- 10 x 1L |
| **TBE10X5** | Cleaver Buffer Tris-Borate-EDTA Running Buffer- 10 x 5L |
| **TAE50X1L** | Cleaver Buffer Tris-Borate-EDTA Running Buffer- 50 x 1L |
| **TAE50X5L** | Cleaver Buffer Tris-Borate-EDTA Running Buffer- 50 x 5L |
| **CSL-MDNA-100BH** | 100bp DNA ladder, 100 – 300bp, 1 x 500µl vial |
| **CSL-MDNA-100BP** | 100bp DNA ladder, 100 – 1500bp, 1 x 500µl vial |
| **CSL-MDNA-1KB** | 1Kb DNA ladder, 250 – 10Kb, 1 x 500µl vial |
| **CSL-MDNA-50BP** | 50bp DNA ladder, 50 – 1500bp, 1 x 500µl vial |
| **CSL-MDNA-BR** | Broad Range DNA ladder, 100bp – 10Kb, 1 x 500µl vial |
| **CSL-MDNA-HR** | High Range DNA ladder, 250bp – 25Kb, 1 x 500µl vial |
| **CSL-LOADDYE** | 10x Bromophenol Blue Loading Dye, 1mL |
| **CSL-LOADDYE10** | 10x Bromophenol Blue Loading Dye, 10mL |
| **SAFEVIEW** | BLUE Light Transilluminator 21 x 21cm |
| **CSLUVTS312** | UV Transilluminator, small 21 x 21 cm, 312nm |
| **CSL-GELX4** | 4mm x 1mm, Gel Cutting Tips, 250/ bag |
| **CSL-GELX4RACK** | 4mm x 1mm, Gel Cutting Tips, 5 racks of 48 |
| **CSL-GELX6.5** | 6.5mm x 1mm, Gel Cutting Tips, 250/ bag |
| **CSL-GELX6.5RACK** | 6.5mm x 1mm, Gel Cutting Tips, 5 racks of 48 |
| **CSLQSPIN** | Mini Centrifuge complete with 1.5/2.0 ml rotor, strip tube rotor, 0.5 and 0.4 ml adapters, 230V, Purple lid |
| **CV20** | Cleaver Pipette - Volume; 2 - 20µl |

# Warranty

The Cleaver Scientific Ltd. 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. For a list of these please see the Care and Maintenance subsection.

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