

Safe Imager™ 2.0 Blue-Light Transilluminator

Catalog nos. G6600, G6600EU, G6600UK

25-1054 Rev. Date: 28 August 2009

QUICK
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Introduction

The Safe Imager™ 2.0 Blue-Light Transilluminator (Fig. 1, A) is designed for viewing stained gels on the laboratory bench top, or within a gel documentation system. The Safe Imager™ 2.0 is supplied with a Safe Imager™ amber filter unit (Fig. 1, B), a power cord (Fig. 1, C), and Safe Imager™ viewing glasses (Fig. 1, D). Light from the LED source inside the transilluminator passes through a blue filter producing a single-intensity signal at approximately 470 nm (Fig. 2), effective for the excitation of SYBR® Safe DNA gel stain, and many other other Invitrogen proprietary nucleic acid and protein stains, such as SYBR® Gold, SYBR® Green I and II, SYPRO® Ruby, SYPRO® Orange, and Coomassie Fluor™ Orange stains. Sensitivity obtained using this instrument is comparable to that obtained with a standard UV transilluminator.

Unlike UV-transilluminators, the Safe Imager™ 2.0 Blue-Light Transilluminator does not produce UV light and does not require UV-protective equipment during use.

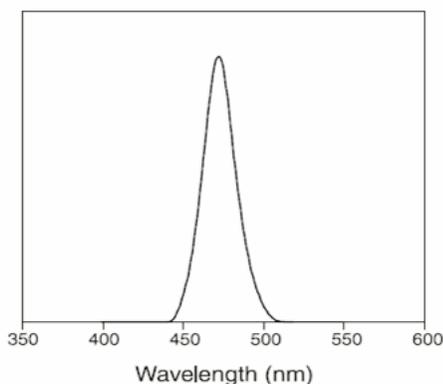


Figure 2. Emission spectrum for the Safe Imager™ 2.0 Blue-Light Transilluminator.

Operating the Safe Imager™ 2.0 Blue-Light Transilluminator

Important: Before handling your gel or sample, ensure that the personal safety equipment you are using is appropriate for the hazards posed by the chemicals that may be present. Make sure to use either the Safe Imager™ amber filter unit or Safe Imager™ viewing glasses; to prevent prolonged exposure of your eyes to the intense blue light (see Safety Information for more details).

1. Ensure that the Safe Imager™ 2.0 Blue-Light Transilluminator is placed on a level bench and that there is adequate air circulation around the unit to prevent overheating.
2. Attach the supplied power cord to the Safe Imager™ 2.0 blue-light transilluminator at the back of the device. Plug the other end of the power cord into a properly grounded electrical outlet, ensuring the correct plug adaptor is attached (see Safety Information for additional details).

Note: The small footprint of the Safe Imager™ 2.0 blue-light transilluminator may allow it to fit inside the cabinet of your current gel documentation system. An additional adapter is supplied to allow direct connection of the power supply unit to a C14 type cord found in some imaging systems.

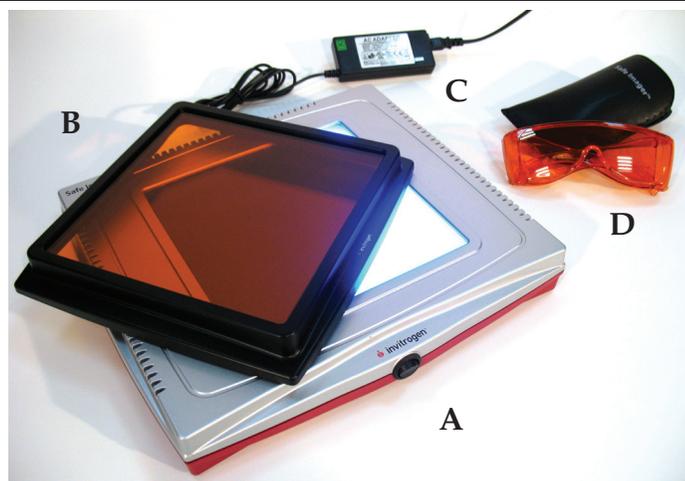


Figure 1. The Safe Imager™ 2.0 Blue-Light Transilluminator.

3. Place the gel or sample onto the surface of the Safe Imager™ 2.0 Blue-Light Transilluminator.
4. Place the amber filter unit on top of the sample or stained gel. If the gel is larger than the viewing area, rest the amber filter unit directly on top of the gel, or forgo the amber filter unit and rely solely on the viewing glasses.
5. Switch the Safe Imager™ 2.0 transilluminator **ON** using the ON/OFF switch located at the front of the instrument (Fig. 3). DNA stained with blue light-excitable dyes (in solution or in gel bands) are immediately visible after illumination and the amber filter unit or viewing glasses are in position.



Figure 3. On / Off switch: Red mark is seen when on.

6. Any standard imaging device may be used to document results. Satisfactory results are often obtained by placing the amber filter unit on top of the gel and photographing/imaging as normal.

Note: The Safe Imager™ 2.0 Blue-Light Transilluminator has a very slim design compared to a UV transilluminator, so the distance between the camera and gel may require adjustment. Also, some CCD documentation systems may include a filter that will work in place of the amber filter unit (contact the manufacturer for filter specifications).

7. Use the viewing glasses when excising bands from DNA gels. The viewing glasses allow the bands to be visualized while leaving the gel surface unobstructed.

Note: Blue-light transillumination is ideal for cloning, and results in dramatically increased cloning efficiencies compared to UV transillumination (Fig. 4).

8. Switch the Safe Imager™ 2.0 Blue-Light Transilluminator off after use.

Cleaning Instructions

Important: Disconnect the Safe Imager™ 2.0 Blue-Light Transilluminator from the electrical outlet before cleaning.

Clean the device with a dry cloth, or with water and mild soap. Ethanol may also be used. Avoid damaging or scratching the glass surface of the Safe Imager™ 2.0 Blue-Light Transilluminator with abrasive cleaners, sharp instruments, or harsh solvents.

Safety Information

The Safe Imager™ 2.0 Blue-Light Transilluminator is an electrical device.

- Never touch the power cord or outlet with wet hands
- **Do not** use this device in damp areas or while standing on damp floors
- Do not use the device, if a crack is apparent in Safe Imager™ 2.0 illumination or diffuser surface
- **Do not** attempt to open the Safe Imager™ 2.0 blue-light transilluminator

The Safe Imager™ 2.0 Blue-Light Transilluminator is supplied with a power cord suitable for your region. This power cord has a universal transformer compatible with 110 V to 220 V. Only the power cord supplied with the Safe Imager™ Blue-Light Transilluminator should be used to power the device. Always disconnect the Safe Imager™ 2.0 Blue-Light Transilluminator from the electrical outlet before cleaning the device.

The Safe Imager™ 2.0 blue-light transilluminator does not produce UV-light. However, the intense blue light emitted by the Safe Imager™ may promote macular degeneration upon prolonged exposure, especially in those prone to such problems (e.g. people with fair complexion and blue eyes, nutritional or endocrine defects, or those who are aging). Use the Safe Imager™ amber filter unit or Safe Imager™ viewing glasses provided with this device to protect your eyes. The amber filter unit and viewing glasses are for viewing stained gels using the Safe Imager™ 2.0 Blue-Light Transilluminator.

Note: The amber filter unit and viewing glasses are **NOT** designed as protection for UV emission, and will **NOT** protect your eyes when viewing gels on UV transilluminators.

Do not leave the Safe Imager™ 2.0 Blue-Light Transilluminator switched on for extended periods of time. After viewing and documenting the gel or sample, always switch the unit off.

Refer to the **E-Gel® Technical Guide** for explanation of symbols and, warnings including **WEEE** and caution labels.

Product List

The Safe Imager™ Blue-Light Transilluminator can be used for the visualization of E-Gel® Products containing blue light-excitable stains:

Cat. no.	Product Name	Unit Size
S37103	Safe Imager™ viewing glasses	each
S33102	SYBR® Safe DNA Gel Stain, 10,000X concentrate	400 µl

The Safe Imager™ Blue-Light Transilluminator can be used for the visualization of E-Gel® Products containing blue light-excitable stains:

G4010-01	E-Gel® EX Gel, 1%	10 gels
G4010-02	E-Gel® EX Gel, 2%	10 gels
G6610-02	E-Gel® SizeSelect™ 2% Agarose Gels	10 gels
G5218-01	E-Gel® 1.2% with SYBR® Safe	18 gels
G5218-02	E-Gel® 2% with SYBR® Safe	18 gels
G7208-02	E-Gel® 96 2% with SYBR® Safe	8 gels
G6618-08	E-Gel® CloneWell™ 0.8% SYBR® Safe Gels	18 gels

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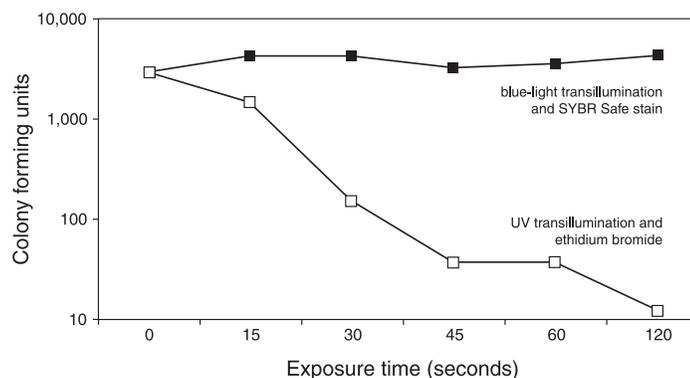


Figure 4. Gels loaded with equal amounts of a PCR product (1.25 kb gene fragment from Ultimate™ ORF IOH #11050) were stained with either SYBR® Safe DNA gel stain (1:10,000 in TBE) or ethidium bromide (0.5 µg/ml in TBE) following electrophoresis. The gel stained with SYBR® Safe stain was visualized on a blue-light box with light emission identical to that produced by the Safe Imager™ 2.0 blue-light transilluminator. The ethidium bromide-stained gel was visualized using UV transillumination. Bands were excised at defined exposure times. DNA was purified from the gel fragments under identical conditions and used in parallel sub-cloning reactions. Following transformation into One Shot® TOP 10 chemically competent bacteria, three serial dilutions were plated and colonies counted using an Alpha Innotech imaging system.

Leaving the Safe Imager™ 2.0 switched **ON** for an extended time, particularly in a non-ventilated environment, can lead to internal overheating, and activation of an automatic temperature control circuit, that will shut off the illumination.

The illumination is restored automatically after the unit has cooled by ~10° C. If the cooling process has begun, switching the unit **OFF** and then **ON** can shorten the time needed to restore illumination.

Instrument Specifications

- **Viewing surface dimensions:** 190 × 190 mm (7.5 × 7.5 in)
- **Overall dimensions:** 295 × 325 × 65 mm (11.6 × 12.8 × 2.6 in)
- **LED life:** 50,000 hours
- **Included accessories:** amber filter unit and viewing glasses
- The Safe Imager™ 2.0 Blue-Light Transilluminator complies with the European Community Safety requirements.
- This device contains Class 1 LED products.