

SPECTROLINE[®]

Ultraviolet Products for Life Science

- ◆ **Transilluminators**
- ◆ **UV Crosslinkers**
- ◆ **Fluorescence Analysis Workstations**
- ◆ **UV Lamps**
- ◆ **Digital Radiometers**
- ◆ **UV Protective Eye and Face Wear**





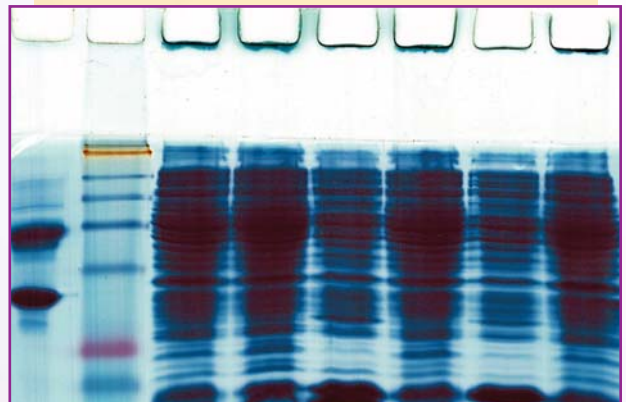
About Spectronics Corporation

Spectronics Corporation is the world's leading manufacturer of high-quality ultraviolet products for the life science and laboratory fields. For today's researcher, Spectronics offers a wide range of products that includes UV lamps, transilluminators, crosslinkers, fluorescence analysis viewing cabinets and photo-documentation workstations.

These state-of-the-art products are built to exacting standards and are used for applications that demand uncompromising quality and reliability. Most of our models are UL listed, CSA approved and CE approved.

Spectronics' modern, 100,000 square foot manufacturing facility and office headquarters is located in Westbury, New York. Nearly 200 personnel are involved in all phases of research and development, manufacturing, sales, marketing, customer service, and logistical and technical support.

More than five decades after its inception, the goal of Spectronics is still the same: to produce effective, top-quality products with the utmost dedication to customer satisfaction.



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Transilluminators



Background

Used for the visualization of molecular samples, transilluminators have become indispensable tools in today's life science laboratories. They are also ideal for use in forensic science, fluorescence detection and much more. Given their valuable role, it is important for researchers to consider factors such as proper wavelength, light intensity (wattage) and uniformity, as well as convenience when choosing the right UV or visible transilluminator for optimum results and value, based on their typical applications.

When it comes to UV emission, great concerns are often paid to the unit's fluorescent response and protection against UV-induced DNA damage. Spectroline® UV transilluminators — offering the world's largest selection — address these important issues and concerns.

Application

The wavelength requirement for a unit will depend on the type of fluorophore molecule and the amount of nucleic acid present in the gel. For some of the newer fluorescent dyes such as SYBR®, SYPRO® and GelStar® series, use of wavelengths longer than UV (blue and longer visible spectrums) are better suited for viewing and documentation.

For more common UV applications, ethidium bromide gels are well illuminated with medium wavelength (312nm or MW) transilluminators. While units with shorter wavelength (254nm or SW) may be used for better signal to background contrast, it must be noted that with long-term exposure, they may cause photoniccking, photodimerization and photobleaching. When working with a small amount of nucleic acid material, longer wavelength models (365nm or LW) are better suited for extended sampling by minimizing these UV-induced damages.

High power (15-watt) units offering increased UV intensities are best suited when working with a small amount of nucleic acid, since they enhance illumination of faint bands. These units provide the high UV irradiance needed to excite fluorophore molecules in electrophoresis gels and thin layer chromatograms. Although there are even higher-powered models on the market (25-watt), the excessive UV intensity emitted will increase the unnecessary risk of sample photobleaching, not to mention higher unit cost.

Our 8-watt units offer standard UV intensity ideal for quick viewing of normal amounts of DNA (typical enzyme restriction digest). Models with variable-intensity controls offer intensity adjustments for viewing and image acquisition according to the amount of material present as well as the fluorophores used.

Product Lines

Standard Series

- 15-watt models provide higher UV intensities
- Models are available in various UV wavelengths, filter sizes, timer options and UV-blocking covers

Bi-O-Vision™ Series

- 8-watt UV and white light tubes provide dual light sources in one transilluminator
- Available with and without variable intensity control and equipped with UV-blocking cover

Select™ Series

- 8-watt, single wavelength MW models provide cost effective 312nm UV sources
- 8-watt LW, MW and SW combination units offer multiple wavelength convenience in one transilluminator
- Available in various filter sizes and equipped with UV-blocking cover

Slimline™ Series

- 8-watt models ideal for small 11x14cm samples
- Available in various UV wavelengths and equipped with UV-blocking cover

Ultraviolet

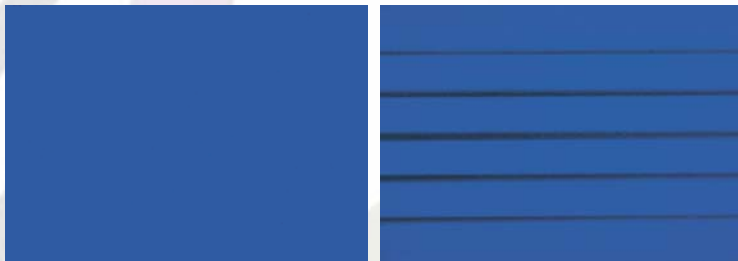
Known for their exceptional performance and durability, Spectroline® transilluminators are designed to deliver optimal UV intensity and extremely uniform UV emission to guarantee clear and reproducible results.

Spectroline transilluminators provide maximum fluorescent response for nanogram sensitivity with minimal UV damage to samples with a variety of choices in wavelength, wattage, filter size and variable intensity controls. Each unit offers high intensity, uniform UV emission and cool operation. They feature a wide variety of UV filter glass sizes to accommodate different sizes of gels and blots, as well as rugged construction and simple operation.

When working with UV models, attention should be given to the age of the UV tubes, as this will affect the sample fluorescent signals. As the UV tubes age in any transilluminator, their output steadily declines making faint bands more difficult to see. This can result in lack of positive results and incorrect densitometric measurements. Regular replacement of UV tubes is suggested, particularly for transilluminators that are shared or heavily used.

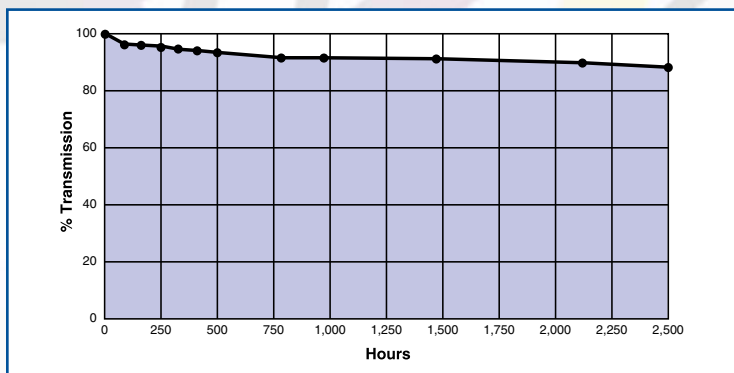
Features

Diffusing Screen: All 312nm and 365nm models come with a unique, removable, polymer-based diffusing screen that ensures uniform UV emission and excellent irradiance uniformity at the sample surface. It also improves the quality of photographic images.



Photos taken with (left) and without (right) Spectroline diffusing screen

LONGLIFE™ Filter Glass: Found on all 254nm and certain 312nm models (2F-assembly series), this special filter glass inhibits solarization up to 50 times longer than traditional UV filters.



Life test of LONGLIFE filter using medium wave UV screen exposure at 11,000 $\mu\text{W}/\text{cm}^2$ intensity level

Features

- **LONGLIFE™ UV filter glass** — inhibits solarization up to 50 times longer than traditional UV filters
- **Easy-to-clean, rugged housing** — composed of durable, stainless-steel filter frame welded to scratch-resistant painted metal
- **Powerful cooling fan** — maintains low filter glass temperature to eliminate surface heat buildup
- **Minimal UV damage** — 312nm and 365nm models virtually eliminate transmission of 254nm radiation
- **Special diffusing screen (D)** — ensures superior surface uniformity by eliminating striations caused by the contours of the tubes; provided on all 312nm and 365nm models
- **Variable-intensity control (V)** — provides continuous intensity adjustments from 100% down to 20% for maximum sample preparation time and sensitivity
- **On/off switch (S)** — controls power to the unit
- **Automatic shut-off timer (T)** — prevents UV overexposure; doubles as on/off switch
- **Hinged UV-blocking cover (C)** — adjustable to a comfortable angle providing the end user with a clear view of surface access for sample manipulation. Eliminates the need for additional UV-absorbing clothing or face wear and protects the filter surface from accidental damage

Transilluminators



Standard Series, Single Wavelength UV

- 15-watt units provide high UV intensity
- Fixed-intensity models include TS-, TC-, TR- and TL-series
- Variable-intensity models with UV-blocking cover include TV-series
- Models accommodate a variety of sample sizes
- Housing dimensions (W x L x H): 18.5" x 19.25" x 4", 34.3 x 48.9 x 10.2cm
- Available in 120V/60Hz, 230V/50Hz, 240V/50Hz and 100V/50-60Hz

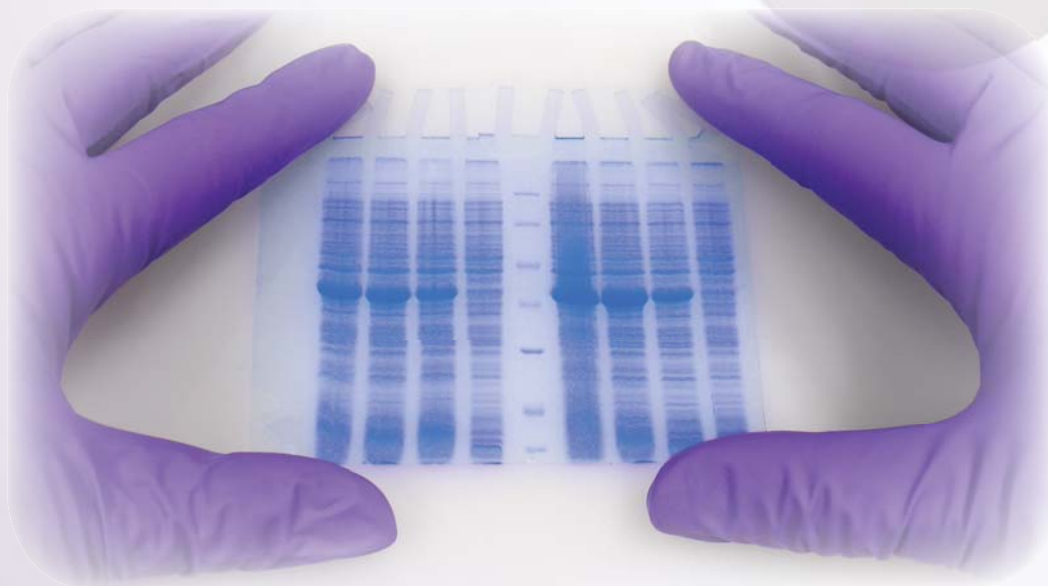
Our high power (15-watt) **Standard Series** units provide unsurpassed UV intensities and UV irradiance to produce brilliant fluorescent responses and highest clarity. Ideal for revealing even trace amounts of DNA! Models available in various UV wavelengths, fixed and variable intensity, filter sizes, timer options and UV-blocking covers.

Fixed-Intensity TS-, TC-, TR- and TL-Series

Model	Wavelength	Filter Size	Filter Assembly	Tubes	Features
TS-254R	254nm	6" x 6", 15 x 15cm	2F606B	(6) 15W SW, BLE-1T155	S
TS-312R	312nm	6" x 6", 15 x 15cm	3F606R	(6) 15W MW, BLE-1T158	S, D
TS-365R	365nm	6" x 6", 15 x 15cm	2F326B	(6) 15W LW, BLE-1T151	S, D
TC-254R	254nm	8" x 8", 20 x 20cm	2F808B	(6) 15W SW, BLE-1T155	T
TC-312R	312nm	8" x 8", 20 x 20cm	3F808R	(6) 15W MW, BLE-1T158	T, D
TC-365R	365nm	8" x 8", 20 x 20cm	2F883B	(6) 15W LW, BLE-1T151	T, D
TR-254R	254nm	6" x 14", 15 x 35cm	2F614B	(6) 15W SW, BLE-1T155	S
TR-312R	312nm	6" x 14", 15 x 35cm	2F614B	(6) 15W MW, BLE-1T158	S, D
TR-365R	365nm	9" x 13", 23 x 33cm	2F365B	(6) 15W LW, BLE-1T151	S, D
TL-254R	254nm	8" x 16", 20 x 40cm	2F816B	(6) 15W SW, BLE-1T155	T
TL-312R	312nm	8" x 16", 20 x 40cm	2F816B	(6) 15W MW, BLE-1T158	T, D
TL-365R	365nm	8" x 16", 20 x 40cm	2F168B	(6) 15W LW, BLE-1T151	T, D

Variable-Intensity TV-Series

Model	Wavelength	Filter Size	Filter Assembly	Tubes	Features
TVC-312R	312nm	8" x 8", 20 x 20cm	3F808R	(6) 15W MW, BLE-1T158	S, D, C, V
TVR-312R	312nm	6" x 14", 15 x 35cm	2F614B	(6) 15W MW, BLE-1T158	S, D, C, V
TVL-312R	312nm	8" x 16", 20 x 40cm	2F816B	(6) 15W MW, BLE-1T158	S, D, C, V





Bi-O-Vision™ Series, UV/White Light Combination

- 8-watt units provide standard UV intensity
- Side-by-side UV/white filter sections
- Available in fixed and variable intensity models
- Housing dimensions (W x L x H): 18.5" x 19.25" x 4", 34.3 x 48.9 x 10.2cm
- Available in 120V/60Hz, 230V/50Hz, 240V/50Hz and 100V/50-60Hz

Bi-O-Vision UV/white light transilluminators offer both medium wave UV (312nm) and white light for dual-light convenience in one box. Each side of the sample platform fits samples up to 8" x 8" (20.3 x 20.3 cm). For added safety, only UV or white light can be selected with single UV/Off/VIS toggle switch.

The TD-1000R model offers fixed-intensity while the TVD-1000R offers variable-intensity control of either UV or white light. These units are continuously adjustable from 100% down to 50%.

Model	Wavelengths	Filter Size	Filter Assembly	Tubes	Features
TD-1000R	312nm/white	8" x 8", 20 x 20cm	3F959R	(5) 8W MW, BLE-8T312 (3) 8W White, BLE-1T230	S, D, C
TVD-1000R	312nm/white	8" x 8", 20 x 20cm	3F959R	(5) 8W MW, BLE-8T312 (3) 8W White, BLE-1T230	S, D, C, V



Select™ Series, Single/Dual-Wavelength UV

- Economical 8-watt units provide standard UV intensity
- Fixed-intensity 312nm models accommodate a variety of sample sizes
- Dual-wavelength models include TD-series
- Housing dimensions (W x L x H): 12" x 13.25" x 3.5", 30.5 x 33.7 x 8.9cm
- Available in 120V/60Hz, 230V/50Hz, 240V/50Hz and 100V/50-60Hz

Select Series transilluminators offer all the features and benefits of our standard fixed-intensity series but designed with a cost-effective housing. Dual wavelengths, in combinations of 365/312nm, 312/254nm and 365/254nm provide broader UV applications. Single and dual-wavelength models accommodate a variety of sample gel or blot sizes, with rugged construction and simple operation. All Select™ series units feature hinged UV-blocking cover to protect the user from radiation and UV filter glass to inhibit solarization.

Single Wavelength

Model	Wavelength	Filter Size	Filter Assembly	Tubes	Features
TS-312E	312nm	6" x 6", 15 x 15cm	3F606E	(6) 8W MW, BLE-8T312	S, D, C
TC-312E	312nm	8" x 8", 20 x 20cm	3F808E	(6) 8W MW, BLE-8T312	S, D, C
TI-312E	312nm	8" x 10", 21 x 26cm	3F810E	(6) 8W MW, BLE-8T312	S, D, C

Dual-Wavelength TD-Series

Model	Wavelengths	Filter Size	Filter Assembly	Tubes	Features
TD-2000E	365/312nm	8" x 8", 20 x 20cm	3F808F	(5) 8W LW, BLE-8T365 (5) 8W MW, BLE-8T312	S, D, C
TD-2010E	312/254nm	8" x 8", 20 x 20cm	2F808E	(5) 8W MW, BLE-8T312 (5) 8W SW, BLE-8T254	S, D, C
TD-2020E	365/254nm	8" x 8", 20 x 20cm	2F808E	(5) 8W LW, BLE-8T365 (5) 8W SW, BLE-8T254	S, D, C
TD-2100E	365/312nm	8" x 10", 21 x 26cm	3F810E	(5) 8W LW, BLE-8T365 (5) 8W MW, BLE-8T312	S, D, C
TD-2110E	312/254nm	8" x 10", 21 x 26cm	2F810E	(5) 8W MW, BLE-8T312 (5) 8W SW, BLE-8T254	S, D, C
TD-2120E	365/254nm	8" x 10", 21 x 26cm	2F810E	(5) 8W LW, BLE-8T365	S, D, C

Transilluminators

Ideal For Working With Mini Gels!



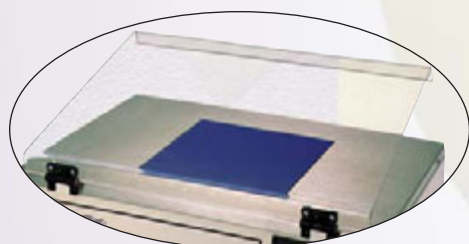
Slimline™ Series, Single Wavelength UV

- Ideal for mini gels and samples
- Cost effective unit with (4) 8-watt UV tubes
- Fixed-intensity models include TE-series in various wavelengths
- Housing dimensions (W x L x H): 11.5" x 14" x 2.5", 29.2 x 35.6 x 5.7cm
- Available in 120V/60Hz, 230V/50Hz, 240V/50Hz and 100V/50-60Hz

Slimline Series™ transilluminators feature a small filter glass that measures 4.3" x 5.5" (11 x 14 cm), making them ideal for working with mini gels. This unit's slim profile uses only four UV tubes – reducing operating cost and UV exposure, while still delivering performance comparable to our standard models.

Model	Wavelength	Filter Size	Filter Assembly	Tubes	Features
TE-254S	254nm	4" x 5", 11 x 14cm	2F405	(4) 8W SW, BLE-8T254	S, C
TE-312S	312nm	4" x 5", 11 x 14cm	3F405S	(4) 8W MW, BLE-8T312	S, D, C
TE-365S	365nm	4" x 5", 11 x 14cm	2F685	(4) 8W LW, BLE-8T365	S, D, C

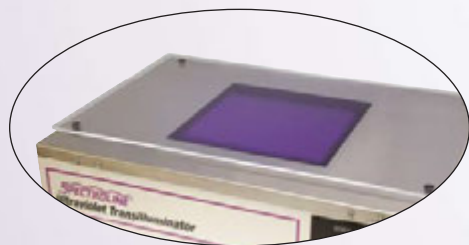
Accessories for UV Transilluminators



Hinged UV-Blocking Cover

- Fits over gels, blots and TLC plates
- Protects users from UV exposure
- Extremely durable

Transparent hinged cover shields the user from hazardous UV radiation and protects the filter from damage caused by dropping objects on the glass. Cover fits over all gels and TLC plates and can be easily attached to hinges on either side of the unit. Constructed of heavy-duty, acrylic-based, UV-blocking material.



UV-Transmitting Filter Protector

- Allows manipulation of gels
- Prevents damage to the filter
- Resistant to solarization

Manipulate gels directly on the transilluminator! UV-transmitting filter protector shields the costly filter glass from cuts, scratches, breakage, etc. Transparent thermoplastic protectors are super-resistant to solarization and last longer than traditional UV protectors. Each protector covers the transilluminator platform completely. Attached rubber bumpers keep protector in place and minimizes heat build-up at transilluminator surface

Model	Size (W x L x H)	Fits
UVC-100A Cover	10.75" x 12.0" x 1.0", 27.3 x 30.5 x 2.5cm	Slimline and Select Series
UVC-250A Cover	18.0" x 13.0" x 1.0", 45.7 x 33.0 x 2.5cm	TC-, TD-, TL-, TR-, TS- and TV-series
UVT-75A Filter Protector	13.75" x 10.0", 0.4", 34.9 x 25.4 x 1.0cm	Slimline and Select Series
UVT-150A Filter Protector	19.2" x 12.2". 0.4", 48.8 x 31 x 1.0cm	TC-, TD-, TL-, TR-, TS- and TV-series



Background

One of the persistent problems facing researchers working with nucleic acids is that the genetic materials can be damaged by the very processes used to study them. For example, to achieve high sensitivity with low background signals during nucleic acid hybridization or re-probing; high concentrations of salts such as sodium dodecyl sulfate (SDS) or detergents are added to the hybridization buffers and washes. This often leads to loss of nucleic acid from blotted hybridization membranes resulting in lowered or no positive signals.

Strengthening the bonds of the genetic material to the membrane offers the ideal solution to this problem. Covalent binding can be achieved by UV crosslinking or by prolonged vacuum baking of the membranes, which often causes heat damage to the samples. The crosslinking process utilizes short wave (254nm) UV light to covalently bond nucleic acids to either nitrocellulose or nylon membranes — a process whereby thymine dimers are formed between the nucleic acids and the membrane. UV crosslinking is a quick, easy and effective procedure to avoid the loss of nucleic acids during the hybridization process leading to increased sensitivity and enhanced signals.

The **Spectrolinker™** was developed to be one of the most advanced, versatile and accurate UV crosslinkers. With the success of Spectrolinker came the **Select™** series UV crosslinkers, created specifically for the needs of researchers with limited budget. Designed to monitor UV radiation and self-adjust to variations in UV intensity, all Spectrolinker UV crosslinkers feature a “smart” microprocessor controller and unique true UV monitoring circuitry to enable users to get error-free results with speed, accuracy and safety. These units are built specifically to eliminate time-consuming adjustments, unnecessary repetitive programming and unwarranted risk of sample damage.

Product Lines

Spectrolinker™ Series

- Rugged, anodized aluminum housing
- Long lasting anodized aluminum chamber prevents rusting
- Available in SW, MW and LW wavelengths
- Interior chambers available in two sizes

Select™ Series

- Cost-effective, painted metal housing
- Long-lasting anodized aluminum chamber prevents rusting
- Available in SW, MW and LW wavelengths

Features

- Covalently binds nucleic acid sequences and hybridization membranes in 30 seconds or less
- Safeguards your valuable test results from washouts
- Ensures optimum nucleic acid membrane binding, even when UV output varies
- Provides ultimate ease of use and accuracy with “Smart” microprocessor controller
- Protects users from UV exposure with fully enclosed chamber

UV Crosslinkers

Applications

UV crosslinking of DNA and RNA after Northern, Southern, slot or dot blots and colony or plaque lifts. PCR decontamination. Nicking ethidium bromide-stained DNA in agarose gels. Gene mapping for cleavage-inhibiting thymine dimers. RecA mutation screening in E.coli. UV sterilization. Continuous UV dosing. Miscellaneous UV-dosage applications including UV-induced polymerization or drying

Spectrolinker™ Series



Select™ Series



The 254nm versions of the Spectrolinker and Select series UV crosslinkers provide super-fast DNA and RNA crosslinking to membranes for improved hybridization-signal sensitivity. At peak, these units can process samples in *under 30 seconds* — that's *240 times faster* than vacuum-oven baking! Our exclusive, wavelength-specific, multi-stack UV photo sensor, which is factory-calibrated to NIST standards, provides precise UV-only dosage measurements. Full range display resolution is accurate to $5\mu\text{W}/\text{cm}^2$ EMI/RFI protection. All models from both series offer exceptional accuracy and precision irradiation, even compensating for aging UV tubes when output diminishes over time.



Programmable “Smart” Microprocessor Controller

- LED-function indicators and color-coded keypad
- Built-in “help” messages
- Four operation modes
- Auto Repeat function remembers last operation without reprogramming

Four operation modes —

- Optimal Crosslink mode automatically provides a preset UV energy dosage of $120\text{ mJ}/\text{cm}^2$
- Energy-set mode ($0\text{-}999,990\ \mu\text{J}/\text{cm}^2$) allows for variable amounts of UV energy to be programmed
- Time mode ($0\text{-}9,900$ seconds), allows for variable time settings to be established
- Intensity mode shows steady-state UV intensity output

Note: All units have an irradiance display resolution of $\pm 5\mu\text{W}/\text{cm}^2$ over the entire range.

Built-in “help” messages —

- Bulb: When the UV tubes need to be replaced
- Door open: the unit also protects users from accidental UV radiation when the door is opened during a run
- End: End of cycle confirmed with display and audible beep
- Remaining Time/Energy provides operation status report
- When the operation has been interrupted. The RESET button cancels the latest settings and START button automatically resumes the current operation.

Standard Size

Spectrolinker™ XL-1000 Series and Select™ XLE-Series

- Overall housing dimensions (W x H x D): 19.5" x 10.5" x 9", 49.5 x 26.7 x 22.9cm
- Effective inner chamber dimensions (W x H x D): 13.5" x 7.0" x 7.5", 34.3 x 17.8 x 19.1cm
- Door dimensions (W x H): 12.0" x 6.25", 30.5 x 15.9cm
- Viewing window dimensions (W x H): 6.0" x 2.5", 15.2 x 6.4cm for XL-series, 6.0" x 3.0", 15.2 x 7.6cm for XLE-series
- Net weight: 17.5 lb, 7.9kg
- Power: 120V-60Hz-2A, 230V-50Hz-2A, 100V-50/60Hz-2A

Model	Wavelength	Tubes
XL-1000, XLE-1000	254nm	(5) 8W SW, BLE-8T254
XL-1000A, XLE-1000A	365nm	(5) 8W LW, BLE-8T365
XL-1000B, XLE-1000B	312nm	(5) 8W MW, BLE-8T312

Large Size

Spectrolinker™ XL-1500 Series

- Overall housing dimensions (W x H x D): 24.0" x 10.5" x 14", 61.0 x 26.7 x 35.6cm
- Effective inner chamber dimensions (W x H x D): 18.25" x 6.25" x 12.5", 46.4 x 15.9 x 31.8cm
- Door dimensions (W x H): 16.0" x 6.25", 40.6 x 15.9cm
- Viewing window dimensions (W x H): 6.0" x 2.5", 15.2 x 6.4cm
- Net weight: 26 lb, 11.8kg
- Power: 120V-60Hz-3A, 230V-50Hz-3A, 100V-50/60Hz-3A

Model	Wavelength	Tubes
XL-1500	254nm	(6) 15W SW, BLE-1T155
XL-1500A	365nm	(6) 15W LW, BLE-1T151
XL-1500B	312nm	(6) 15W MW, BLE-1T158



Fluorescence Analysis Workstations



Background

Fluorescence Analysis Workstations enable life science researchers to view and take photographic images (film or digital) of electrophoretically separated nucleic acids. These images can be documented onto print or film for further scanning and densitometric analysis.

Spectroline workstations utilize darkroom cabinets for convenient viewing, analyzing or photographing of fluorescent samples with both epi-illumination and trans-illumination light sources. Our full range of cabinets provides different working sample sizes, options for UV lamps and is useful for numerous applications.

Applications

Long-Wave UV

Forensic investigation, chromatography, cellulose TLC plates, titration process, fluorochemistry, UV dosing

Medium-Wave UV

Gel electrophoresis, gradient sampling, UV dosing

Short-Wave UV

UV crosslinking, UV sterilization, mutation studies, silica TLC plates, toxicology, microbiology, protein, steroid and vitamin separations, UV dosing

Product Lines

CM-Series

- Lightweight, portable viewing darkroom is easily transported
- Removable bottom panel for use with Spectroline transilluminators
- Felt curtain provides easy access to cabinet interior
- Models available with or without UV light sources

CC-, CL-Series

- Large, UV viewing darkroom for use with larger samples
- Removable bottom panel for use with Spectroline transilluminators
- Felt curtain provides easy access to cabinet interior while blocking out external light

CX-20

- Large, UV viewing darkroom for use with larger samples
- Removable bottom panel for use with Spectroline transilluminators
- Available with side curtains or front door providing easy access to cabinet interior

Features

- Provide superior fluorescence analysis and documentation
- Modular design with interchangeable lamps for varying UV wavelengths
- Offer maximum fluorescent contrast with a wide range of UV transilluminators



CM-10A



CM-26A



CM-10MP

Portable Viewing Cabinets

CM-Series

- Flexible, contoured eyepiece with a built-in UV-absorbing window for safe sample viewing
- Felt curtain permits easy access to cabinet interior while shielding samples from external light
- Removable bottom panel allows easy positioning over transilluminators
- Lightweight, durable construction creates easily transportable darkroom

Our portable, space-saving mini-cabinets double as personal darkrooms and UV irradiating units. The **CM-10A** model comes without a light source but can be outfitted with one of our Spectroline E-series UV lamps, available in 4-, 5- and 6-watt versions in combinations of LW, MW and SW. The **CM-24A** model comes complete with an ENF-240C lamp and **CM-26A** model is equipped with an ENF-260C. The compact **CM-10MP** viewing cabinet can be coupled with one of our battery-operated MiniMAX™ Series 4-watt or 5-watt UV lamps, available in SW, LW and combination versions*.

* Mini-cabinets and UV lamps each sold separately (see page 15, 16, 17, 18 for lamps).

Model	Product	UV Tubes with Typical Intensities	Dimensions (W x L x H)	Net Weight
CM-10A	Cabinet only	optional	9 x 12 x 6.5 in (22.9 x 30.5 x 16.5cm)	5.0 lbs, 2.3kg
CM-10MP	Cabinet only	optional	8.75 x 10 x 4.5 (22.2 x 25.4 x 11.4cm)	4.0 lbs, 1.8kg
CM-24A	CM-10A with ENF-240C	4W, 365nm with 300 μ W/cm ² , 254nm with 310 μ W/cm ²	9 x 12 x 6.5 in (22.9 x 30.5 x 16.5cm)	7.0 lbs, 3.2kg
CM-26A	CM-10A with ENF-260C	6W, 365nm with 350 μ W/cm ² , 254nm with 390 μ W/cm ²	9 x 12 x 6.5 in (22.9 x 30.5 x 16.5cm)	7.2 lbs, 3.4kg

Fluorescence Analysis Workstations



Large Viewing and Photographic Cabinets

CC- and CL-Series

- Modular design allows for adaptation of interchangeable Spectroline UV lamps
- Complete with an internal 25-watt white light bulb
- Specially designed port allows for safety viewing eyepiece or the substitution of a “snap-on” camera adapter for photography

Our **CC-80** and **CL-150** fluorescence analysis cabinets offer superior fluorescence viewing of research findings. They feature a modular design which lets you vary UV wavelengths with interchangeable Spectroline UV lamps; maximize fluorescent contrast by adding a Spectroline transilluminator and document your results with “snap-on” Spectroline camera adapters. Visible epi-illumination is provided by an internal 25-watt white light bulb. Rugged and durable, both cabinets are made of aluminum with a chemical-resistant polyurethane coating. Felt curtains permit easy access to the interior while blocking out ambient light. All light control switches are conveniently located on the top of the cabinets. When maximum intensity is desired, dual lamps can be operated simultaneously in those cabinets that accept two lamps. CC-80 cabinets accommodate our E-series lamps (8-watt, single or double tube models), whereas CL-150 cabinets accommodate our X-series lamps (15-watt, single or double tube models). The spacious CC-80 cabinet accepts standard gels and up to two 8” x 8” (20 x 20cm) TLC plates, while the even roomier CL-150 can easily accommodate larger gels and up to four 8” x 8” plates. The **CC-81** workstation includes a CC-80 cabinet with an ENF-280C lamp with separate 8-watt LW (365nm) and SW (254nm) UV tubes. Whereas the **CL-151** includes a CL-150 cabinet with an XX-15NF lamp with separate 15-watt LW and SW UV tubes.

Model	Product	UV Tubes	Dimensions (W x L x H)	Net Weight
CC-80	Cabinet with white light bulb	Optional E-series Lamp	17.5" x 20.25" x 9.75" , 44.5 x 51.4 x 24.8cm	11.5 lbs, 5.2kg
CC-81	CC-80 cabinet with ENF-280C lamp	8W, 365nm/254nm		11.5 lbs, 5.2kg
CL-150	Cabinet with white light bulb	Optional X-series Lamp	19.5" x 24.25" x 12.75", 49.5 x 61.6 x 32.4cm	15.0 lbs, 6.8kg
CL-151	CL-150 cabinet with XX-15NF lamp	15W, 354nm/254nm		15.0 lbs, 6.8kg
BLE-1T261	Replacement 25-watt white light bulb			



Fluorescence Analysis Cabinet

CX-20 Work Station

- Specially designed for 20 x 20cm gels and TLC plates
- Unit is equipped with individual long wave, medium wave and short wave UV tubes, including an internal white light bulb
- Flexible, contoured eye piece with a built-in UV-absorbing window to increase fluorescent contrast and reduce eye fatigue
- Full size CX-20 offers 8-watt tubes with standard UV intensity
- Designed to be used with most Spectroline transilluminators
- Internal white light: 8-watt bulb

The **CX-20** UV viewing cabinet delivers standard and high UV intensities assuring maximum UV irradiance, fluorescent contrast and peak efficiency. Designed for use with our Spectroline transilluminators, a removable bottom panel allows for additional transillumination source. The flexible, contoured viewing eyepiece with a built-in UV-absorbing sight glass provides comfort, safety and eliminates “blue haze” interference needed for maximum fluorescent contrast. For convenience, this workstation features push-button wavelength selection and internal white light control. To protect samples from unwanted light exposure, all power buttons in this unit are color-coded for convenience. The CX-20 is equipped with internal 8-watt LW (365nm), SW (254nm) and white light tubes. The double-tiered soft rubber curtains on both sides of the CX-20 unit give the user easy access to the interior. The curtains and the door provide complete shielding from external light.

Model	Product	Internal UV Tubes	Dimensions (W x L x H)	Net Weight
CX-20	Cabinet with curtains	8W, 365nm/254nm	12" x 16" x 9", 30.5 x 40.6 x 22.9cm	13.0 lbs, 5.9kg
BLE-1T230	Replacement 8-watt bulb			



Battery-Operated Hand-Held UV lamps

MiniMAX™ Series

The compact, lightweight and portable **MiniMAX™ Series** of lamps are available in a choice of 4-watt and 5-watt models with long-wave, short-wave and/or dual wavelength multi-band UV tubes. Some models also include white light for general illumination. LW and SW models are offered in both self-filtered and unfiltered versions. Short-wave and long-wave/short-wave UV multi-band lamps are also available with LONG-LIFE™ glass filters. All lamps feature a unique “shadow box” design that blocks room light and makes materials glow brightly. Ideal for microbiology, mutation studies, laboratory UV dosing and illumination and other life science applications!

Features

- Choice of 4-watt and 5-watt models with long-wave, short-wave, dual long-wave/short-wave and multi-band UV tubes
- Available in filtered and unfiltered versions
- Unique “shadow box” design blocks room light and makes materials glow brightly!
- Portable and lightweight units are easily carried for on-site or field inspections
- Provides 4 to 6 hours of use. Powered by four 1.5-volt AA alkaline batteries (not included).
- Lamps come complete with an AC adapter, nylon carrying strap and nylon travel pouch
- Feature sliding light shield for trouble-free tube changing. Slide-out compartment allows for quick, effortless battery replacement.



Ultraviolet Lamps

4-Watt MiniMax Series

- Long-wave (365 nm), short-wave (254 nm) or dual wavelength/multi-band tubes
- With white light flashlight feature
- Self-filtered or with LONGLIFE™ glass filter

Model	UV Tube	Filter	Dimensions (W x L x H)	Weight (with batteries)
UV-4AW	Long-wave with white light	Self-filtered	8.24" x 2.25" x 1.25", 20.9 x 5.5 x 3.2cm	10.25 oz, 290g
UV-4FW	Short-wave with white light	LONGLIFE™	8.24" x 2.25" x 1.25", 20.9 x 5.5 x 3.2cm	10.25 oz, 290g
UV-4NFW	Dual-wave/UV multi-band with sliding dual-wavelength selector cover and white light (each filter measures 1.5 x 13/16", 3.8 x 2.1cm)	LONGLIFE™	8.24" x 2.25" x 1.25", 20.9 x 5.5 x 3.2cm	10.25 oz, 290g

5-Watt MiniMax Series

- Long-wave (365 nm), short-wave (254 nm) or dual wavelength/multi-band tubes
- With or without white light flashlight feature
- Self-filtered or with LONGLIFE™ glass filter

Model	UV Tube	Filter	Dimensions (W x L x H)	Weight (with batteries)
UV-5A	Long-wave	Self-filtered	9" x 2.25" x 1", 22.9 x 5.7 x 2.5cm	10.25 oz, 290g
UV-5F	Short-wave	LONGLIFE™	9" x 2.25" x 1.25", 22.9 x 5.7 x 3.2cm	11 oz, 312g
UV-5NF	Dual-wave/UV multi-band with sliding dual-wavelength selector cover and white light (each filter measures 2 13/16 x 13/16", 5.6 x 2.1cm)	LONGLIFE™	9" x 2.25" x 1.25", 22.9 x 5.7 x 3.2cm	12 oz, 340g

5-Watt Germicidal MiniMax Series

- Unfiltered short-wave (254 nm) tube with restricted aperture
- Designed for UV sanitizing of disease-causing microorganisms and UV degradation studies

Model	UV Tube	Filter	Dimensions (W x L x H)	Weight (with batteries)
UV-5G	Short-wave	N/A	9" x 2.25" x 1.25", 22.9 x 5.7 x 3.2cm	11 oz, 312g

Features

- Choice of 4-watt, 5-watt, 6-watt and 8-watt models
- Available in all UV wavelengths (long-wave, medium-wave, short-wave) as well as germicidal lamps
- Single and dual wavelength combinations
- Filtered and unfiltered long-wave UV tubes
- Offered with or without filter assemblies
- Compact, lightweight and rugged anodized aluminum housing
- Convenient carrying handle that snaps off for use with lamp stand



Corded Hand-Held UV Lamps

E-Series

The compact **E-Series** lamps provide various combinations of long, medium and/or short wave UV. A corrosion-resistant, specular-aluminum reflector optimizes UV irradiance. All SW and MW models feature a unique **LONGLIFE™** filter glass for higher initial UV transmission and maximum resistance to solarization. These lamps are available in choices of integrally filtered LW tubes (BLB) or unfiltered UV tubes with or without separate filter assemblies. Lamps with unfiltered tubes produce higher UV intensity while double-tube units provide broader UV coverage than their single-tube counterparts. Color-coded on/off switches, conveniently located at the top of the units, put irradiance control at your fingertips. The anodized-aluminum lamp housings are extremely rugged and durable. All lamps include a removable carrying handle. An optional lamp stand, shown at right, is available for hands-free operation.

Single Wavelength, E-Series

Long wave, LW (UV-A, 365nm)

- Integrally filtered tube (BLB) or unfiltered tube (BL)
- With or without filter assembly (FA)



Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
EA-140	One 4-watt BLB, BLE-220B	--	3.25" x 7" x 2.5", 8.3 x 17.8 x 6.4cm	1.75 lbs, 0.8kg
EN-140	One 4-watt BL, BLE-270W	--	3.25" x 7" x 2.5", 8.3 x 17.8 x 6.4cm	1.75 lbs, 0.8kg
EN-140L	One 4-watt BL, BLE-270W with FA	2F003	3.25" x 8" x 2.5", 8.3 x 20.3 x 6.4cm	2.0 lbs, 0.9kg
EA-240	Two 4-watt BLB, BLE-220B	--	3.25" x 7" x 2.5", 8.3 x 17.8 x 6.4cm	1.75 lbs, 0.8kg
EA-150	One 5-watt BLB, BLE-5T365B	--	3.25" x 8" x 2.5", 8.3 x 20.3 x 6.4cm	2.0 lbs, 0.9kg
EA-160	One 6-watt BLB, BLE-480B	--	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.0 lbs, 0.9kg
EN-160	One 6-watt BL, BLE-6T365	--	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.0 lbs, 0.9kg
EN-160L	One 6-watt BL, BLE-6T365 with FA	2F005	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
EA-180	One 8-watt BLB, BLE-760B	--	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.25 lbs, 1.0kg
EN-180	One 8-watt BL, BLE-8T365	--	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.25 lbs, 1.0kg
EN-180L	One 8-watt BL, BLE-8T365 with FA	2F082	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg
EN-280L	Two 8-watt BL, BLE-8T365 with FA	2F082	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Ultraviolet Lamps

Medium wave, MW (UV-B, 312nm)

- Unfiltered tube
- With LONGLIFE™ filter assembly (FA)

Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
EB-160C	One 6-watt MW, BLE-6T312	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
EB-180C	One 8-watt MW, BLE-8T312	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg
EB-280C	Two 8-watt MW, BLE-8T312	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Short wave, SW (UV-C, 254nm)

- Unfiltered tube
- With LONGLIFE™ filter assembly (FA)

Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
EF-140C	One 4-watt SW, BLE-2537S	2F001	3.25" x 8" x 2.5", 8.3 x 20.3 x 6.4cm	2.0 lbs, 0.9kg
EF-160C	One 6-watt SW, BLE-6254S	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
EF-180C	One 8-watt SW, BLE-8T254	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg
EF-260C	Two 6-watt SW, BLE-6254S	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.75 lbs, 1.2kg
EF-280C	Two 8-watt SW, BLE-8T254	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Dual Wavelength, E-Series

- Unfiltered long, medium and short wave tubes
- With LONGLIFE™ filter assembly (FA)

Long wave (UV-A, 365nm) / Short wave (UV-C, 254nm)

Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
ENF-240C	One 4-watt BL, BLE-270W One 4-watt SW, BLE-2537S	2F001	3.25" x 8" x 2.5", 8.3 x 20.3 x 6.4cm	2.0 lbs, 0.9kg
ENF-260C	One 6-watt BL, BLE-6T365 One 6-watt SW, BLE-6254S	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
ENF-280C	One 8-watt BL, BLE-8T365 One 8-watt SW, BLE-8T254	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Long wave (UV-A, 365nm) / Medium wave (UV-B, 312nm)

Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
ENB-260C	One 6-watt BL, BLE-6T365 One 6-watt MW, BLE-6T312	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
ENB-280C	One 8-watt BL, BLE-8T365 One 8-watt MW, BLE-8T312	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Medium wave (UV-B, 312nm) / Short wave (UV-C, 254nm)

Model	UV Tube(s)	Filter Assembly	Dimensions (W x L x H)	Net Weight
EBF-260C	One 6-watt MW, BLE-6T312 One 6-watt SW, BLE-6254S	2F006	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.5 lbs, 1.1kg
EBF-280C	One 8-watt MW, BLE-8T312 One 8-watt SW, BLE-8T254	2F018	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.75 lbs, 1.2kg

Germicidal, E-Series

- Unfiltered short wave (UV-C) tubes without filter assembly

Model	UV Tube	Filter Assembly	Dimensions (W x L x H)	Net Weight
EF-140	One 4-watt SW, BLE-2537S	--	3.25" x 7" x 2.5", 8.3 x 17.8 x 6.4cm	1.75 lbs, 0.8kg
EF-160	One 6-watt SW, BLE-6254S	--	3.25" x 10.25" x 2.5", 8.3 x 26.0 x 6.4cm	2.0 lbs, 0.9kg
EF-180	One 8-watt SW, BLE-8T254	--	3.25" x 13.25" x 2.5", 8.3 x 33.7 x 6.4cm	2.25 lbs, 1.0kg

Accessories for E-Series Lamps

SE-140	Lamp Stand
CH-180	Carrying Handle



Features

- Choice of 15-watt, 30-watt and 40-watt models
- Available in all UV wavelengths (long-wave, medium-wave, short-wave) as well as germicidal lamps
- Single- and double-tube combinations
- Filtered UV-A and unfiltered UV tubes
- Offered with or without filter assemblies
- 15-watt models with anodized aluminum housing
- 30- and 40-watt models with enameled sheet metal housing
- Outfitted with sturdy metal brackets for easy overhead mounting

UV Bench and Display Lamps

X-Series

X-series lamps are ideally suited for applications where high-intensity, wide-area UV coverage is required. Constructed of rugged metal with sturdy mounting brackets, these units are available in various combinations of long, medium and/or short wave UV. The complete line also offers lamps in a wide choice of various intensities, sizes and-wattage, including single or double UV tubes. A corrosion-resistant aluminum reflector optimizes UV irradiance while all short and medium wave models feature our unique **LONGLIFE™** filter glass to ensure high initial UV intensity. These versatile lamps are also a key component of our CL-151 UV fluorescence analysis work station. They offer easy wavelength interchangeability making this system ideal for numerous applications requiring a darkened environment.

Single Wavelength, X-Series

Long wave, LW (UV-A, 365nm)

- Integrally filtered tube (BLB) or unfiltered tube (BL)
- With or without filter

Model	UV Tube(s)	Filter	Dimensions (W x L x H)	Net Weight
X-15A	One 15-watt BLB, BLE-1800B	--	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	4.5 lbs, 2.0kg
X-15N	One 15-watt BL, BLE-1T151 with filter	2F501	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.25 lbs, 2.8kg
X-30	One 30-watt BLB, BLE-5000B	--	6" x 36" x 4", 15.2 x 91.4 x 10.2cm	9.25 lbs, 4.3kg
X-40	One 40-watt BLB, BLE-7900B	--	6" x 48" x 4", 15.2 x 121.9 x 10.2cm	12.0 lbs, 5.4kg
XX-15A	Two 15-watt BLB, BLE-1800B	--	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	5.5 lbs, 2.5kg
XX-15N	Two 15-watt BL, BLE-1T151 with filter	2F501	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg
XX-40	Two 40-watt BLB, BLE-7900B	--	6" x 48" x 4", 15.2 x 121.9 x 10.2cm	14.0 lbs, 6.4kg
XX-40N	Two 40-watt BLB, BLE-7900B with filter	2F951	6" x 48" x 4", 15.2 x 121.9 x 10.2cm	17.5 lbs, 7.9kg

Ultraviolet Lamps

Medium wave, MW (UV-B, 312nm)

- Unfiltered tube
- With LONGLIFE filter

Model	UV Tube(s)	Filter	Dimensions (W x L x H)	Net Weight
X-15B	One 15-watt MW, BLE-1T158	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.25 lbs, 2.8kg
XX-15B	Two 15-watt MW, BLE-1T158	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg

Short wave, SW (UV-C, 254nm)

- Unfiltered tube
- With LONGLIFE filter

Model	UV Tube(s)	Filter	Dimensions (W x L x H)	Net Weight
X-15F	One 15-watt SW, BLE-1T155	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.25 lbs, 2.8kg
XX-15F	Two 15-watt SW, BLE-1T155	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg

Multi Wavelength, X-Series

- Unfiltered long, medium and short wave tubes
- With LONGLIFE filter

Long wave (UV-A, 365nm) / Short wave (UV-C, 254nm)

Model	UV Tube(s)	Filter	Dimensions (W x L x H)	Net Weight
XX-15NF	One 15-watt BL, BLE-1T151 One 15-watt SW, BLE-1T155	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg

Long wave (UV-A, 365nm) / Medium wave (UV-B, 312nm)

Model	UV Tube(s)	Filter	Dimensions (W X L X H)	Net Weight
XX-15NB	One 15-watt BL, BLE-1T151 One 15-watt MW, BLE-1T158	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg

Medium wave (UV-B, 312nm) / Short wave (UV-C, 254nm)

Model	UV Tube(s)	Filter	Dimensions (W X L X H)	Net Weight
XX-15BF	One 15-watt MW, BLE-1T158 One 15-watt SW, BLE-1T155	2F508	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	6.5 lbs, 2.9kg

Germicidal, X-Series

- Unfiltered short wave (UV-C) tubes without filter

Model	UV Tube(s)	Filter	Dimensions (W X L X H)	Net Weight
X-15G	One 15-watt SW, BLE-1T155	--	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	4.5 lbs, 2.0kg
X-30G	One 30-watt SW, BLE-1T305	--	6" x 36" x 4", 15.2 x 91.4 x 10.2cm	9.25 lbs, 4.3kg
XX-15G	Two 15-watt SW, BLE-1T155	--	4.5" x 18.75" x 3.5", 11.4 x 47.6 x 8.9cm	5.5 lbs, 2.5kg



Designed for maximum accuracy and versatility, Spectroline® digital radiometers are available in four distinct series offering a variety of features for measuring ultraviolet and/or visible light sources. All radiometers are housed in durable polycarbonate and are lightweight, battery-operated and portable. Units feature solid-state electro-optical circuitry for long, trouble-free operation and minimal maintenance.

The AccuMAX™ series meters feature an advanced microprocessor-controlled, multi-wavelength capable readout unit with software-driven functions, user-customized settings and a wide selection of interchangeable, single-wavelength sensor detectors. A dual-wavelength sensor detector that measures both UV and visible light is also available. Single-wavelength DM-series radiometers combine a readout unit and a single sensor in one unit. DRC-series versions utilize a single readout unit with interchangeable sensors for multiple-wavelength capability, including a visible light sensor. DSE-2000 kits are available combining a single UV/visible readout unit with UV-A and visible sensors packaged in a convenient carrying case.

All of our radiometers are outfitted with high-quality interference filters with well-defined transmission bands to resist degradation and eliminate light sensitivity to infrared and other undesirable radiation. The sensor heads are provided with special diffusers that ensure accurate cosine response. For maximum calibration accuracy, these units use the electrically calibrated pyroelectric radiometer (ECPR) method of calibrating directly traceable to NIST standards. A calibration certificate is provided with every unit.



Product Lines

AccuMAX™ Series

- Advanced microprocessor-controlled meter with interchangeable sensor detectors
- Software-driven functions; user-interface customized settings and three main operation modes
- Choice of direct or USB cable connection between readout unit and sensor detector

DM-Series

- Single-wavelength capable UV sensor/readout unit

Features

- Overall accuracy of $\pm 5\%$ directly traceable to NIST standards
- AccuMAX series sensors available in both standard and extended range versions
- Sealed silicone diode housed in liquid- and water-resistant sensor housing is protected from shock, humidity and light leakage
- Broader bandpass interference filter prevents stray radiation readings
- Auto-zeroing, excellent linearity and cosine response
- Solid-state design for compact, durable radiometers with simple operation and battery-level indicator
- AccuMAX series powered by two 9V alkaline batteries, DM-series powered by one 9V alkaline battery. Batteries included with all units.

Digital Radiometers/Photometers

Digital Microprocessor-Controlled Meters



AccuMAX™ Series

- Features two advanced digital, microprocessor-controlled readout units (XF-1000 for fluorescent UV tubes; XR-1000 for HID UV bulbs) specially calibrated to complement a full line of interchangeable AccuMAX series sensor detectors
- Software-driven functions provide multifaceted light level reading
- Five user-customized settings and three main operation modes (absolute data/normal, autozeroing and integration) featuring hold, peak and back functions
- Overall accuracy of better than $\pm 5\%$ with reference to NIST standards
- Choice of direct or USB cable connection between sensor detector and readout unit
- Large, easy-to-read monochrome LCD screen
- Automatic shutoff and user-defined power save features
- Powered by two 9-volt alkaline batteries (included)
- Readout unit dimensions (W x L x H) : 4.25 in x 7.75 in x 1.25 in, 10.8 cm x 19.7 cm x 3.2 cm)
- Readout unit weight: 1.1 lb (499 g)

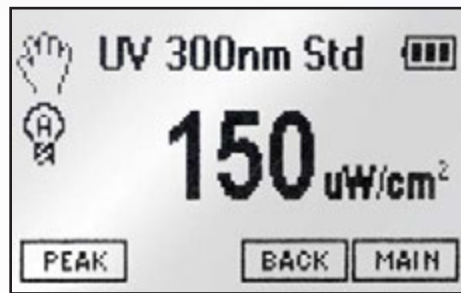
The **AccuMAX series** is designed to provide accurate readouts for UV irradiance, visible illuminance or luminance light readings. When equipped with an interchangeable sensor detector, the AccuMAX readout unit can be used to perform fluorescent inspection (intensity check through normal operation) and UV dosing (energy check through integration operation). Both the XR-1000 and XF-1000 readout units feature a sleek design and rugged housing, maximum 4-digit autoranging and easy-to-read 3 inch monochrome LCD screen with icons and alphanumeric display. A removable, rubber protective boot for the meter is included. A padded carrying case is available as an accessory.

Model	Readout Unit
XF-1000	Calibrated for fluorescent UV tubes
XR-1000	Calibrated for HID UV bulbs

AccuMAX sensor detectors are designed to meet virtually any laboratory or life science application. These detectors feature water-resistant, sealed sensor housings, superior bandpass interference filters and excellent cosine response. Single-wavelength detectors are available in both standard range (XS-series), ideal for checking the intensity of fluorescent UV tubes and HID UV bulbs, and extended range (XTS-series), useful for high-intensity light sources used in curing and photoactivation applications. Also available are a single-wavelength visible illuminance detector (XS-555/I) and a luminance detector (XS-555/L). In addition, a dual-wavelength UV/VIS sensor detector (XDS-1000) is available to measure both UV-A and visible light, useful for industrial inspections. All sensors can easily be connected to the readout unit either directly or with a standard USB cable. A special 5 foot USB cable with water-resistant adapter (XCB-100) is available as an accessory.

Model	Dimensions (W X L X H)	Net Weight
Single Sensor	(W x L x H) : 2.0 in x 3.0 in x 7/8, (5.1 x 7.6 x 2.2cm)	2.4 oz, 68g
Luminance Sensor	(W x L x H): 2.1 in x 3.0 in x 3.2 in, (5.3 x 7.6 x 8.1cm)	6.4 oz, 181g
Dual Sensor	(W x L x H): 2.0 in x 4.75 in x 7/8, (5.1 x 12.1 x 2.2cm)	3.2 oz, 91g

Model	Sensors	Spectral Range	Range in Units
XS-254	UV-C	254nm	0-100 mW/cm ²
XTS-254	UV-C	254nm	0-3W/cm ²
XS-300	UV-B	300nm	0-100 mW/cm ²
XTS-300	UV-B	300nm	0-3W/cm ²
XS-365	UV-A	365nm	0-100 mW/cm ²
XTS-365	UV-A	365nm	0-3W/cm ²
XS-405	UV-V	405nm	0-100 mW/cm ²
XTS-405	UV-V	405nm	0-3W/cm ²
XS-450	Bilirubin	450nm	0-100 mW/cm ²
XTS-450	Bilirubin	450nm	0-3W/cm ²
XS-555/I	Visible illuminance	555nm	0-5,300 lux, 0-500 fc
XS-555/L	Visible luminance	555nm	0-1,000,000 cd/m ² , 0-90,000 cd/ft ² , 0-285,000 fL
XDS-1000	Dual UV-A/VIS {	UV-A	0-100 mW/cm ²
		Visible illuminance	0-5,300 lux, 0-500 fc



- Four side-by-side buttons provide for easy operation of user-intuitive interactive functions
- Menu-driven, user-selectable settings; customized visible units of measurement and backlight display to suit operating conditions
- Screen displays meter status, battery power level, light intensity, wave type readings and user-available functions
- Multiple-function control of main operational modes: absolute data/normal, autozeroing and integration
- Multifaceted light level reading and access to additional features (peak, hold and back screen) embedded within main operational modes
- Integration (INTG) mode sums up cumulative ultraviolet light exposed to sensor over an interval of time – useful for UV dosing applications

The AccuMAX meter's microprocessor-controlled software is the key to its user-friendly operation, advanced functionality and accurate readouts. Four pressure-sensitive buttons on the readout unit's membrane keypad offer an extensive array of advanced features. The software-driven function menu gives full access to the three main operating modes: absolute data/normal, automatic zero and integration. To save battery power, the meter automatically shuts off after 10 minutes of non-use in all modes, with the exception of integration. In addition, the software allows the user to customize units of measurement for visible light readouts, as well as LCD screen backlight settings. These functions and other user-selectable parameters are easily accessible through the software's main and subordinate menus.

Customizing Settings

The AccuMAX provides users the capability of selecting the default visible unit of measurement in their choice of foot-candles (fc), lux, lm/ft² or lm/m². The user can also select and adjust the display contrast, backlight brightness and interval between active and passive operations, which also helps conserve battery power. Unless the meter is at low-battery status, all user-selectable parameters will be saved and used for future meter operations.

Operational Modes

Absolute Data/Normal

This mode will measure the real-time absolute total light to which the sensor is exposed. The HOLD function is accessible in this mode, giving the user the option to freeze the reading and display the data. The PEAK feature is also available in this mode, which will freeze and display the highest intensity reading recorded during normal operation.

Automatic Zero

In this mode, the AccuMAX automatically subtracts "unwanted" ambient light when measuring light output. All subsequent measurement readings will be relative to this zero light level, saving the user data-recording time. The HOLD and PEAK features are also accessible in this mode.

Integration (INTG)

In the integration mode, the meter sums up the cumulative ultraviolet light that the sensor is exposed to over an interval of time, then displays the resultant total energy absorbed in joules. This mode is useful for UV dosing applications when checking energy levels of the light source used. In this mode, the freeze feature will hold the displayed data static while continuing the integration process in the background. For convenience, the AccuMAX will not shut off automatically after 10 minutes (as it would in other functions), allowing the user to continue integrating for extended periods of time.

Digital Radiometers/Photometers



DM-Series

- Overall accuracy of better than $\pm 5\%$ with reference to NIST standards
- Single units for short wave, long wave and solar UV measurements
- DM-H series measure up to $199,990 \mu\text{W}/\text{cm}^2$ ($199.9 \text{ mW}/\text{cm}^2$)
- DM-X series measure up to $19,990 \mu\text{W}/\text{cm}^2$
- Easy to read large, 4 digit, LED display with low battery indicator
- Powered by four (4) 1.5V alkaline batteries (included) or four (4) rechargeable 1.25V NiCad (optional)
- Readout dimensions (W x L x H): 3.5" x 7.25" x 2", 18.4 x 8.9 x 5.1cm
- Readout net weight: 1 lb, 0.45kg
- Sensor dimensions (W x L x H): 2" x 3" x 0.7", 5.1 x 7.6 x 1.7cm
- Sensor net weight: 1.25 oz, 35.4gm
- Sensor cord length: 3 ft, 91.4cm

The **DM-series** radiometers are offered as separate units to measure light sources in the short wave, long wave and solar UV ranges. Direct intensity readings provided in $\mu\text{W}/\text{cm}^2$ over a range of $10 \mu\text{W}/\text{cm}^2$ up to $199,990 \mu\text{W}/\text{cm}^2$ (depending on H or X versions) — more than ample for high intensity UV sources. The red LED display is equally accurate in dark environment or under ambient light conditions. The housing protects the sensor cell from shock and isolates the photo detectors from thermal gradients during handling, ensuring drift-free measurements. Coiled sensor cord is conveniently stored in readout unit.

Model	Wavelength	Sensor Spectral Range	Irradiance Range	Resolution
DM-254HA	Short wave	230-280nm	0-199,990 $\mu\text{W}/\text{cm}^2$	100 $\mu\text{W}/\text{cm}^2$
DM-254XA	Short wave	230-280nm	0-19,990 $\mu\text{W}/\text{cm}^2$	10 $\mu\text{W}/\text{cm}^2$
DM-365HA	Long wave	320-400nm	0-199,990 $\mu\text{W}/\text{cm}^2$	100 $\mu\text{W}/\text{cm}^2$
DM-365XA	Long wave	320-400nm	0-19,990 $\mu\text{W}/\text{cm}^2$	10 $\mu\text{W}/\text{cm}^2$
DM-3500A	Solar UV	300-400nm	0-19,990 $\mu\text{W}/\text{cm}^2$	10 $\mu\text{W}/\text{cm}^2$

Accessories/Replacement Parts for Digital Radiometers

Model	Product	Radiometer Models
XCB-100	Water-resistant USB connector cable with adapter, 5 ft (1.5 m)	AccuMAX series
XRБ-100	Rubber boot for digital readout unit	AccuMAX series
XCC-100	Padded carrying case	AccuMAX series

UV Protective Eye and Face Wear



Features

- Designed for long wearing comfort and to protect the user against most ultraviolet light sources
- Improves contrast between the fluorescent area and the background by eliminating the “blue haze” interference
- **UVS-30 spectacles**, generally recommended for sporadic, lower intensity UV sources fit easily over eyeglasses
- **UVG-50 goggles** and **UVF-80 face shield**, for maximum protection from extended or high intensity UV exposure, adjusts to fit the face
- Goggles and face shield meet ANSI specifications and OSHA standards

Background

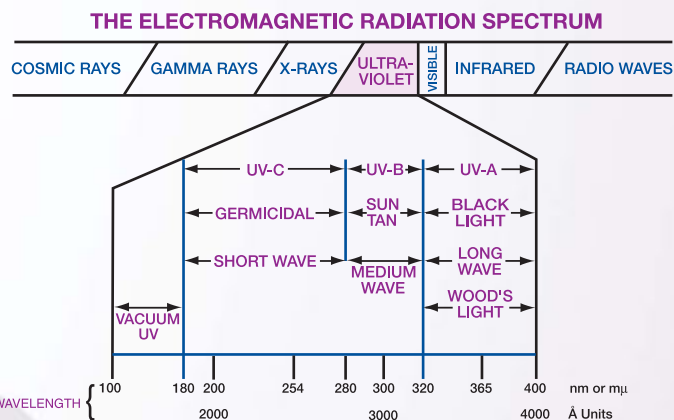
Ultraviolet light is a natural part of our environment, most commonly found in sunlight. It is an invisible band of electromagnetic radiation just beyond the violet end of the visible spectrum. This band is generally divided into short, medium and long wavelength regions that differ in their effects on the human body.

The short wavelength region, also known as far ultraviolet, germicidal or UV-C, extends from 180 to 280nm. Although it has little penetrating power, short wave can cause severe burns to the eyes and skin. The usual artificial sources of this radiation are low pressure, mercury vapor lamps and certain other metal vapor lamps used in UV sterilization, chromatography, mineralogy, EPROM erasing, photochemical reaction, etc.

The medium wavelength region, also known as middle ultraviolet, erythermal or UV-B, extends from 280 to 320nm. It has high penetrating power and can seriously burn the eyes and skin. The usual artificial sources of this radiation are “sun lamps” used for cosmetic or therapeutic purposes and vitamin production.

The long wavelength region, also known as near ultraviolet, black light, Wood’s light or UV-A, extends from 320 to 400nm. Some people are overly sensitive to radiation in this region and may experience “blue haze” interference when viewing sources of long wave UV.

Although everyone is exposed to UV sources natural and/or artificial on a daily basis, unprotected and prolonged exposure to any form of UV light, including long wave UV, can result in cataracts and possibly cancer. Even brief exposures can be hazardous if the intensity is high enough.



Spectroline protective eye and face wear reduces eye fatigue and irradiance at the eyes and face from most sources to levels below the maximum recommended in NIOSH document HSM 73-11009. The UVS-30 spectacles and UVG-50 goggles are well proportioned to fit easily over regular eyeglasses. Adjustable to fit all sizes, the UVF-80 face shield has a visor that can be pivoted off the face. Both the goggles and face shield meet ANSI specification Z87.1 for safety eye wear and OSHA standard 1910.133 for eye and face protection.

Warranty Information

Warranty

All equipment is warranted against defects in manufacture. Spectronics Corporation's obligation under this warranty is limited to repairing or replacing, at the option of Spectronics Corporation, any part(s) of the product which, if properly installed, used and maintained, proves upon factory examination to have been defective in materials or workmanship within 12 months from the date of delivery to the customer.

This warranty does not apply to any component which (1) is normally consumed in operation or (2) has a normal life inherently shorter than the warranty stated. For example, tubes, bulbs, filters and rechargeable batteries are warranted for 30 days. In addition, Spectronics Corporation does not warrant any instrument that has been subjected to misuse, negligence or accident, or has been repaired or altered by anyone other than Spectronics Corporation.

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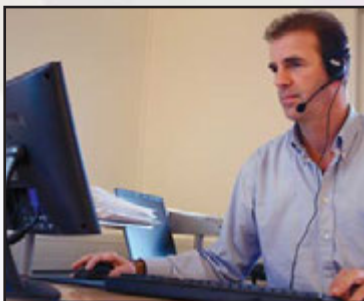
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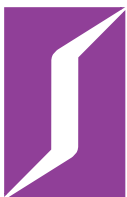
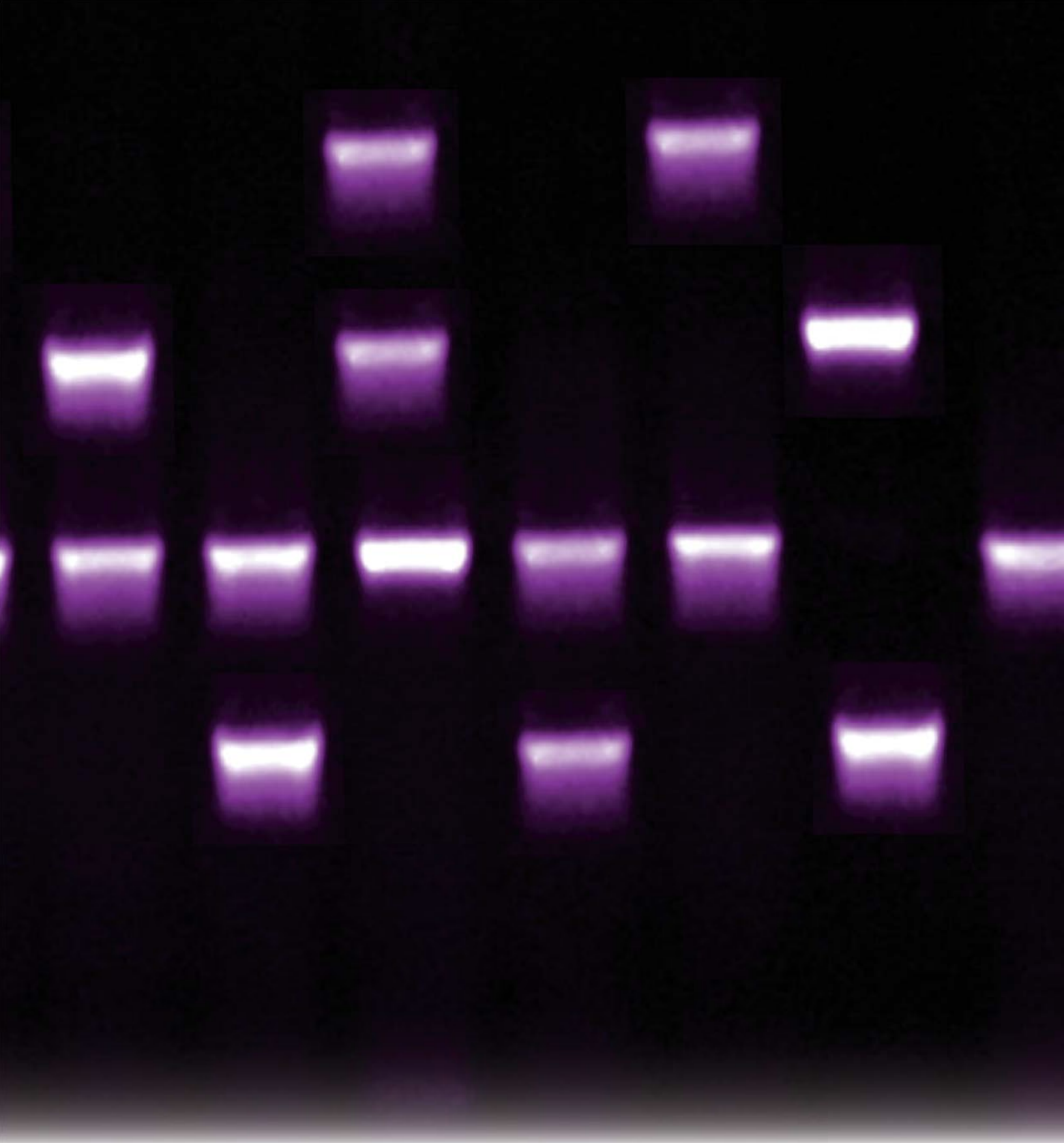
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