

# FUSION SYSTEMS

CHEMILUMINESCENCE &  
FLUORESCENCE IMAGING

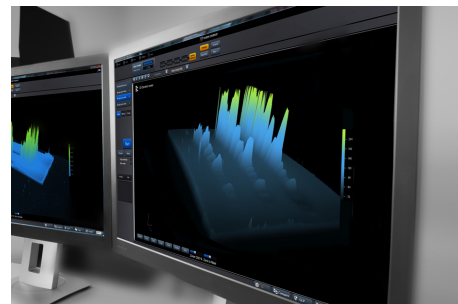
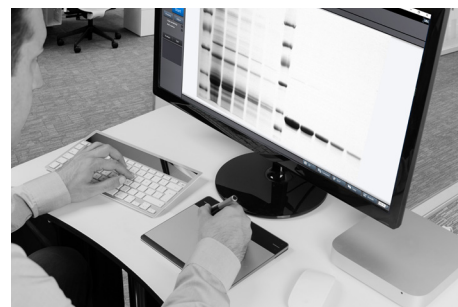
2019 - 2021



WESTERN BLOT & GEL DOCUMENTATION IMAGING

**VILBER**  
Smart Imaging

The FUSION FX's protocol driven image acquisition is as quick as it is intuitive: adjust your exposure, save, print or quantify.



The FUSION FX delivers more significant quantitative data compared to other imagers.

**For chemiluminescence, the time to get the image is dramatically reduced and precious antibody can be saved.**

### RELIABLE DATA FOR QUANTIFICATION PRECISE AND ACCURATE

The FUSION FX is ideal for quantification grade imaging. Chemiluminescent Western blot data poses distinct challenges in producing quantifiable, reproducible data. These problems stem from a low-dynamic range of detection and the difficulty in accurately determining the limit of detection. The FUSION FX eliminates all these issues thanks to its High Sensitivity Reading (HSR) camera technology which delivers reliable dynamic range, linearity and sensitivity for the lowest limit of detection. With the HSR, the FUSION FX reduces the various sources of noise to the lowest floor level and the signal can stand out from the surrounding background.

The FUSION FX provides consistent and reproducible data, independently of the chemiluminescence time course. The chemiluminescence intensity/time profile consists of an initial rise period up to a prolonged emission at a pseudo-plateau level and a decline. The FUSION FX Automatic imaging mode compensates the time course of the chemiluminescence reaction by adjusting the exposure time while maintaining the larger possible image dynamic.

### CUSTOM MADE V.070 LENS UNRIVALLED SENSITIVITY

The FUSION FX custom made V.070 lens combines sensitivity and optical performance for very faint light

conditions. The optical system includes ultra-low dispersion components to enhance the sensitivity, and aspheric elements to deliver consistently sharp images. The V.070 lens has a focusing distance of only 20cm for the best sensitivity, clarity and image quality. The main function of a camera lens is to collect light. The lens aperture represents its capability to collect as much light as possible in a given period. Its sensitivity is usually expressed by a range of f-stops. The smaller the f-stop number, the larger the aperture. A lower f-number denotes a greater aperture opening, which allows more light to reach the CCD sensor. The aperture of the V.070 lens is f/0.70, providing faster imaging and better sensitivity compared to all other imagers.

### DESIGN FOR SIMPLICITY ONE CLICK TO THE IMAGE

The FUSION FX has been designed for maximum ease of use. From its simple installation to its intuitive user interface, this system is plug-and-play. The FUSION FX software is the easiest software to take an image. Place your blot on the tray, select your application, click on Start and automatically the system auto-exposes your blot image, your marker image and combines the two together.

The FUSION FX includes our unique Apps Studio approach to imaging. The Apps Studio is a library which contains 40 different protocols for your blot, gel and other bioluminescence samples. The protocol oriented Apps Studio ensures reproducibility and one click acquisition for the best ease of use.

**For fluorescence, photobleaching and phototoxicity are reduced.**

# New Edge Generation



## FUSION FX



### SUPERIOR QUANTITATIVE RESULTS

Ultimate linearity for precise protein quantification over the full dynamic range.



### HIGH SENSITIVITY READING (HSR) TECHNOLOGY

Ultra-low noise imaging thanks to a dual camera amplifier architecture.



### CUSTOM MADE LENS

FUSION FX custom made lens for enhanced sensitivity and sharpness.



### SUPER SENSITIVITY

Time to get the image is drastically reduced and precious antibody can be saved.

## QUANTITATIVE WESTERN BLOTTING

**Sensitivity is a key feature to detect a protein expressed at low levels. Broad linear dynamic range is necessary to compare weak and strong signals in the same image.**

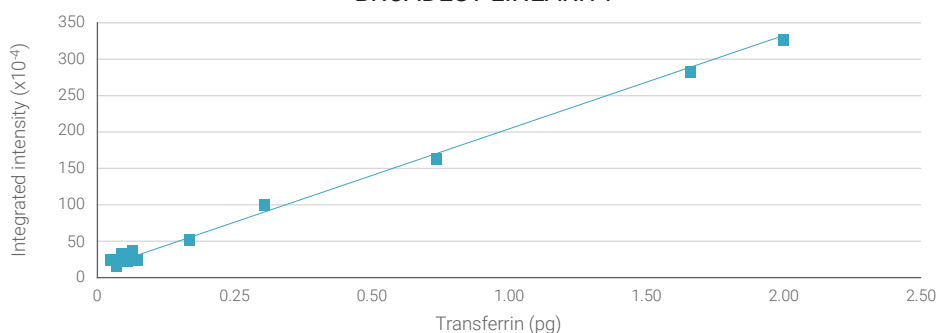
The FUSION FX has a limit of detection in the picogram level.

The system achieves the best signal to noise ratio for the lowest limits of detection. The FUSION

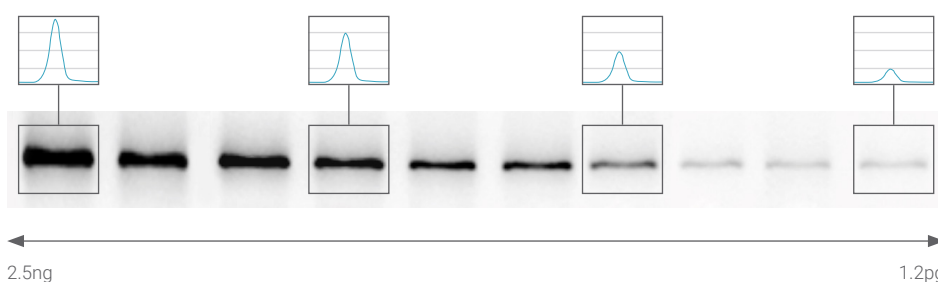
FX is extremely linear over its wide dynamics and can easily detect large intensity difference between bright and faint bands before reaching saturation. The broad

linear dynamic range enables relative quantification of target proteins with confidence.

### BROADEST LINEARITY



### PICOGRAM LEVEL OF DETECTION & WIDE DYNAMIC RANGE



# FUSION FX

## Smart Inside

- Auto-exposure and auto-focus
- Automatic light illumination control
- Protocol driven image acquisition
- Smart sensors to identify the sample distance
- Fully motorized lens and filter wheel

## The Best Sensitivity

- Quoted in hundreds of publications
- Better sensitivity than a film
- One click to get the image
- Optional IR and visible fluorescence
- CFR21 Part 11 ready



## Ideal For Quantification

- Reproducible and comparable quantification data
- ImageMaster™ technology to obtain the optimum image for quantification
- Scientific TIFF file or proprietary file format
- Clarity™ technology for razor sharp band revelation without affecting data integrity

## Long Lasting High Quality

- Stainless steel, aluminium and steel darkroom for the best robustness
- Proven camera robustness
- White light LED for thousands of hours of use
- Interchangeable Pad

## FUSION FX PadBox Concept

The PadBox concept meets the need for accommodating several interchangeable light sources into one device. The PadBox can easily integrate one of the several available Application Pads such as our UV, blue, white light or Spectra Pad or your own hardware such as heater, cooler, electrophoresis tank, special light source etc. The Application Pad is automatically recognized by the system and the imaging and software options are adjusted accordingly.





## CAMERA & OPTICS

FUSION FX6 with the eVo-6 camera – resolution oriented camera ideal for publication

eVo-6 camera:

- Unrivalled custom made lens f/0.70
- Scientific grade CCD camera
- Grade 0, zero defect
- Image resolution: 20 megapixels
- Native resolution: 2838×2224
- -55° C maximum cooling differential from ambient -30°C absolute and regulated cooling via three stage Peltier thermoelectric cooler
- High Sensitivity Reading (HSR) technology
- USB connection

## EASE OF USE

One-Click-to-the-Image™

Auto-exposure, Auto-focus

Auto-lighting

## HARDWARE

Smart Darkroom technology:

- Motorised optical lens
- Motorised 7 positions filter wheel
- Software control of the lighting
- Automatic recognition of the sample position
- Automatic visible lighting adjustment

Steel and stainless steel darkroom for long lasting robustness. Wide access door with UV safety shut-off  
Built-in slide-out tray for interchangeable Pad.  
Built-in Spectra Capsules Adapter

## SOFTWARE

Free software for image acquisition with full GLP compliance. Molecular weight calculation, band quantification, colony counting, distance calculation, text annotation and image enhancement included.

CFR21 Part 11 ready

## APPLICATIONS

Chemiluminescence Western, Northern or Southern blot

Optional applications:

DNA and RNA gels and fluorescence stain imaging with UV-Pad or Blue-Pad

Colorimetric stained protein gels, X-Ray film, autorads, SSCP gels, colony dish and flask imaging with White-Light-Pad or UV-Pad + conversion screen

Fluorescence Western blot with Spectra Capsules

## TECHNOLOGY & INNOVATION

- Apps Studio™
- 3D Dynamics Scan™
- SuperResolution™
- High Sensitivity Reading (HSR) technology™
- ImageMaster™ assistant
- Clarity™

## OPTIONS

Optional Spectra Capsules innovative concept for a customized choice of up to 7 powerful filtered optic light capsules:

**365nm UV - 440nm - 480nm - 530nm  
640nm - 680nm - 740nm - 780nm**

Covering a wide variety of application in the UV, Visible and the IR range.

- UV-Pad, Super-Bright-Pad, Sky-Light-Pad  
Blue-Pad, White-Light-Pad

- White light or blue light conversion screen

- Advanced Bio-1D quantification software
- CFR21 Part 11 Administration Software

# SPECTRA CAPSULE

The Spectra Light Capsules are powerful fluorescence exciters with focused light for uniform illumination and enhanced power. Equipped with primary and secondary optics, the Light Capsules are categorized as Laser Class II due to their intense power.



MULTISPECTRAL IMAGING



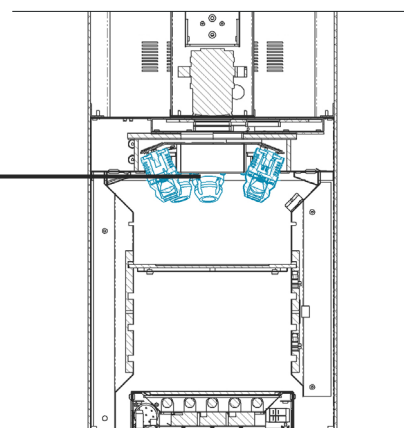
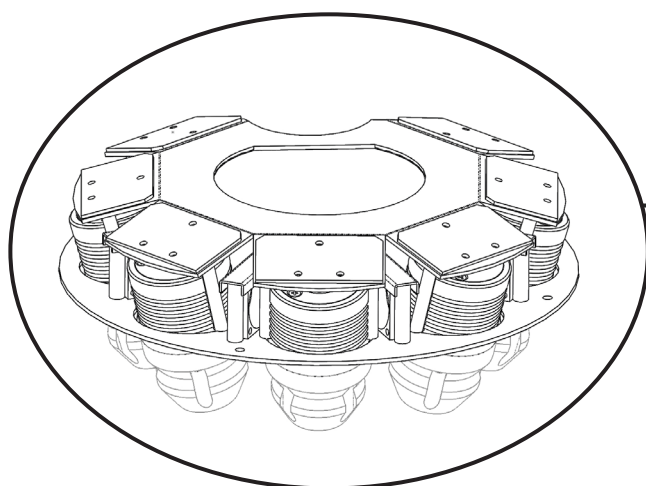
PULSE LIGHT



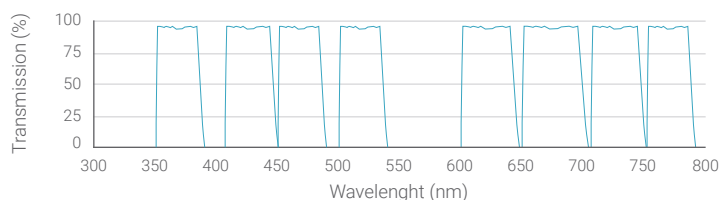
LASER CLASS II



NARROW BANDPASS FILTERS

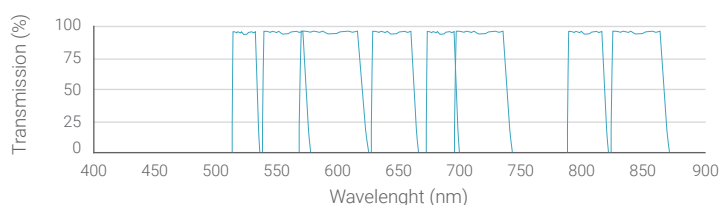


## Exciter Capsules



Chip material : AlGaInP, InGaIn or AlGaAs  
Filter blocking index: O.D. 5.5  
Laser Class II

## Emission Filters



Focal disk for enhanced signal to noise ratio.  
Sputtered magnetron technology.  
Hard coated.

Achieve the desired narrow spectral bandwidth by selecting from our set of Capsules or by customizing your own light spectrum.



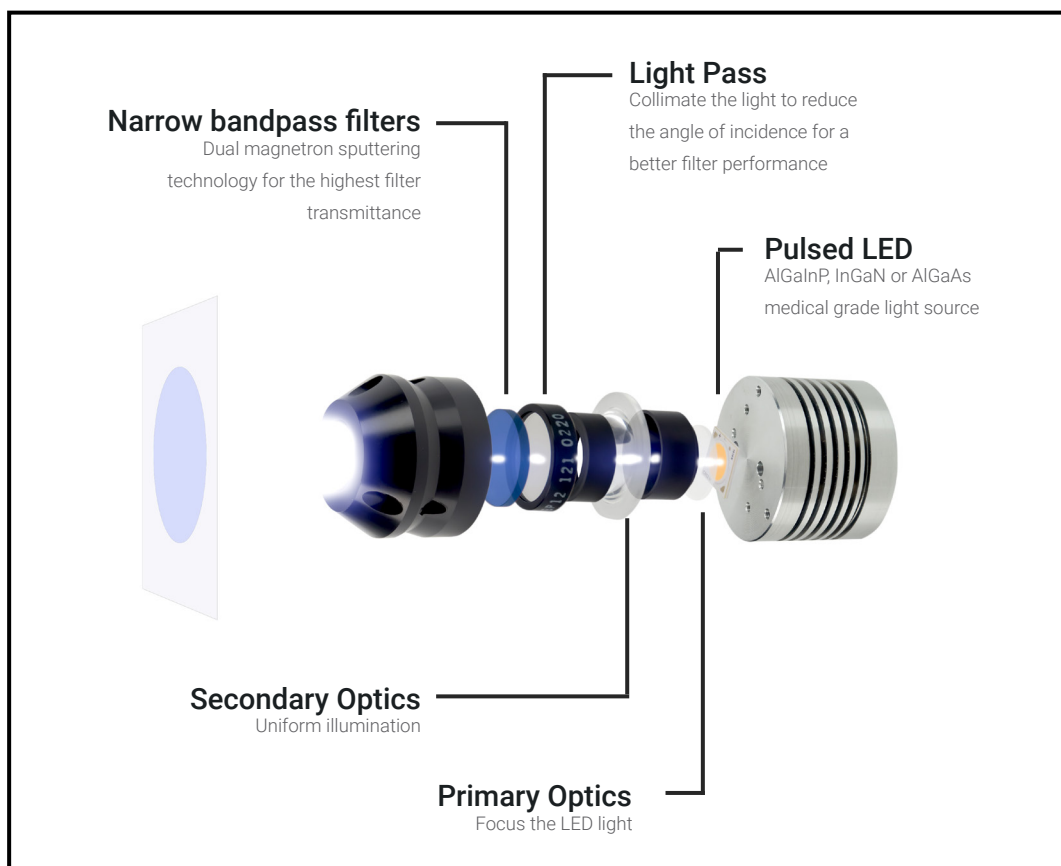
Optimum Results - Primary and Secondary Optics Increase Sensitivity and Homogeneity.



## The LED Light Capsules for quantitative fluorescence

Benefit from an excellent signal-background ratio for imaging and detect the lowest protein concentration. Choose from 8 LED Light Capsules to cover the complete standard spectrum from UV to infra-red.

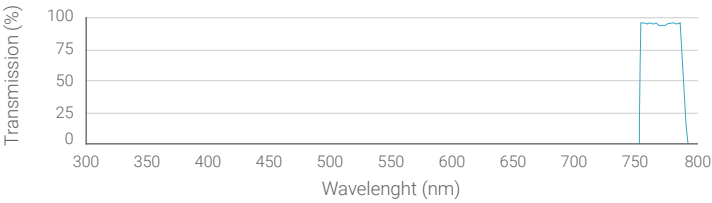
Each Capsule produces a monochromatic light of a different wavelength with a very narrow-band illumination. This reduces the cross-stimulation and increases the sensitivity of your images. From 400 to 700nm, custom design your own Light Capsule to get closer from the spectrum of your dye.



The Spectra Light Capsules offers proven reliability and superior performance.

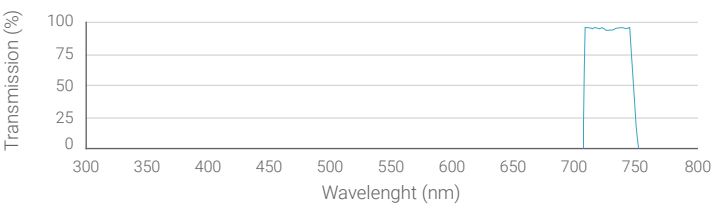
# CAPSULE OF LIGHT SPECTRUM

780nm



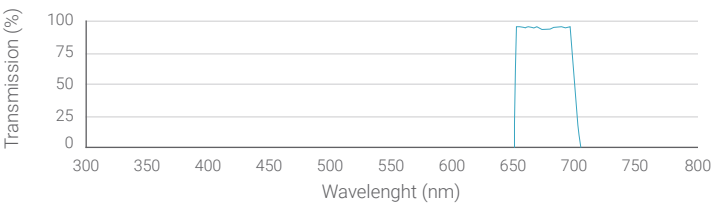
Peak wavelength : 780nm  
Chip material : AlGaAs  
Blocking index: O.D. 5.5  
Laser Class II

740nm



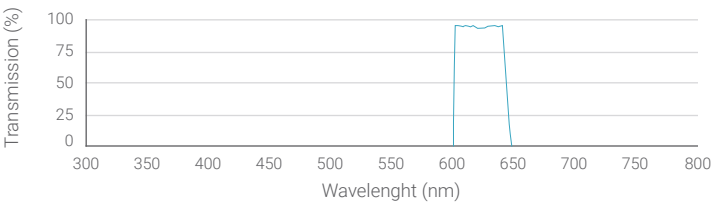
Peak wavelength : 740nm  
Chip material : AlGaAs  
Blocking index: O.D. 5.5  
Laser Class II

680nm



Peak wavelength : 680nm  
Chip material : AlGaInP  
Blocking index: O.D. 5.5  
Laser Class II

640nm



Peak wavelength : 640nm  
Chip material : AlGaInP  
Blocking index: O.D. 5.5  
Laser Class II

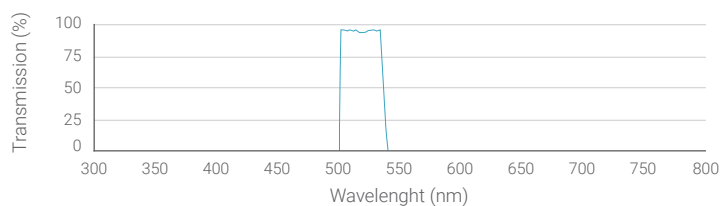
Spectrum and peak values may differ slightly from the typical values and spectrum above.



Our standard range of 8 Light Capsules allow you a wide variety of possible applications in the UV, the visible and the IR ranges.

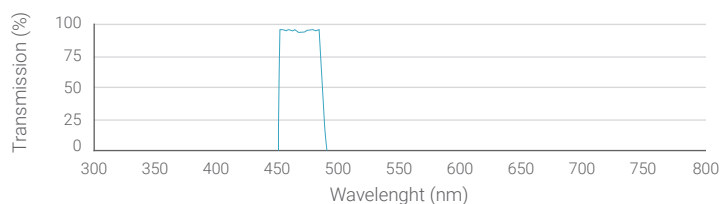
## CAPSULE OF LIGHT SPECTRUM

530nm



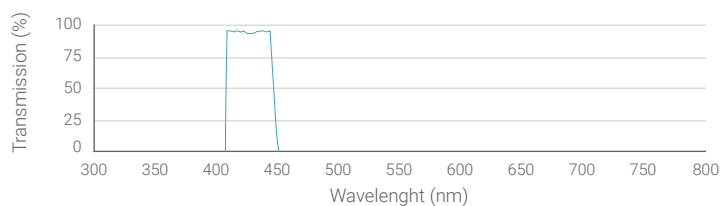
Peak wavelength : 530nm  
Chip material : AlGaInP  
Blocking index: O.D. 5.5  
Laser Class II

480nm



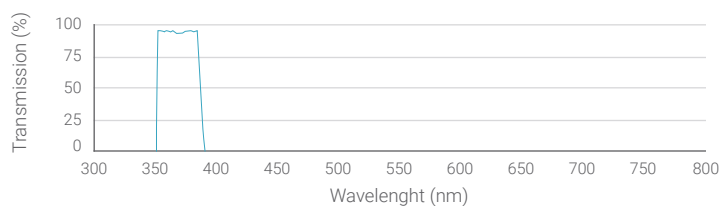
Peak wavelength : 480nm  
Chip material : AlGaInP  
Blocking index: O.D. 5.5  
Laser Class II

440nm



Peak wavelength : 440nm  
Chip material : AlGaInP  
Blocking index: O.D. 5.5  
Laser Class II

365nm



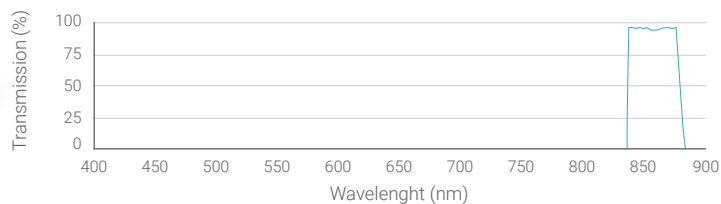
Peak wavelength : 365nm  
Chip material : InGaIn  
Blocking index: O.D. 5.5  
Laser Class II

Spectrum and peak values may differ slightly from the typical values and spectrum above.

Our filter combines the most sophisticated ion-beam-sputtering deposition systems, with our proprietary aperture disk for enhanced signal to noise ratio.

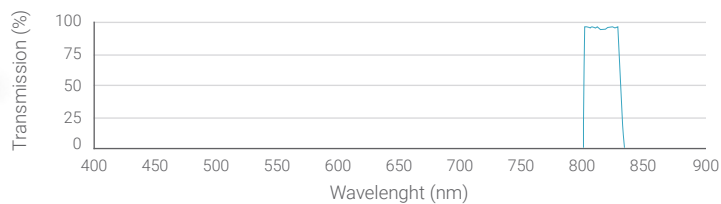
## EMISSION FILTER SPECTRUM

850nm



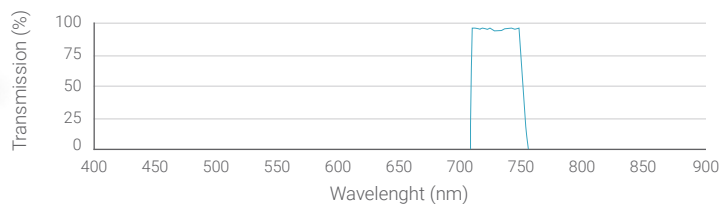
Typical Range: 830-870nm  
Sputtered magnetron technology.  
Hard coated.

820nm



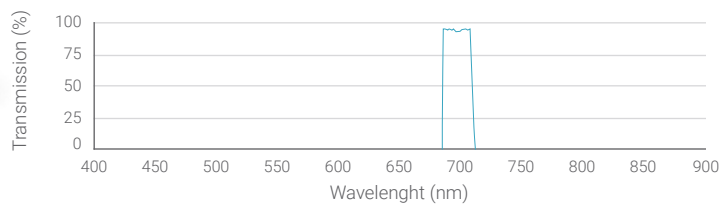
Typical Range: 800-840nm  
Sputtered magnetron technology.  
Hard coated.

750nm



Typical Range: 710-760nm  
Sputtered magnetron technology.  
Hard coated.

710nm



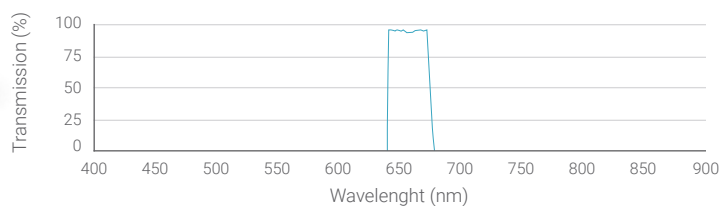
Typical Range: 690-720nm  
Sputtered magnetron technology.  
Hard coated.

Spectrum and peak values may differ slightly from the typical values and spectrum above.

Steeper edges, precise wavelength accuracy, and carefully optimized blocking mean better contrast and faster measurements.

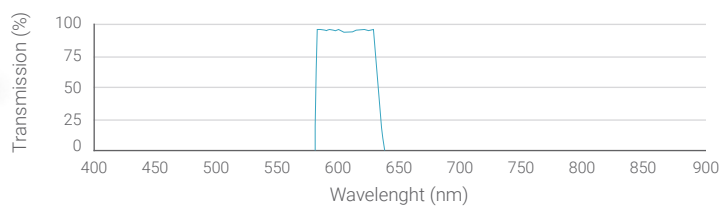
## EMISSION FILTER SPECTRUM

655nm



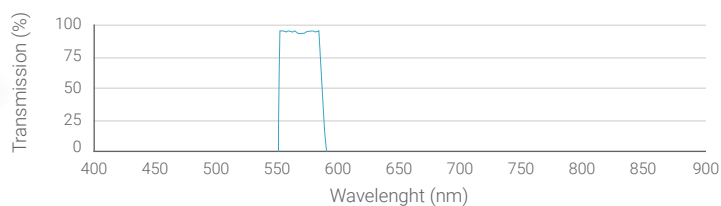
Typical Range: 640-670nm  
Sputtered magnetron technology.  
Hard coated.

595nm



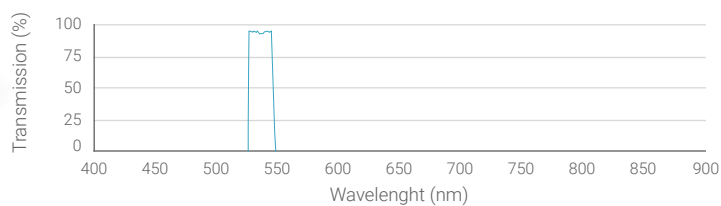
Typical Range: 580-640nm  
Sputtered magnetron technology.  
Hard coated.

565nm



Typical Range: 550-580nm  
Sputtered magnetron technology.  
Hard coated.

535nm



Typical Range: 530-550nm  
Sputtered magnetron technology.  
Hard coated.

Spectrum and peak values may differ slightly from the typical values and spectrum above.



# FUSION FX SPECTRA

*New Edge Generation  
Up To 7 Fluorescence Channels At Once*

## Camera & Optics

**FUSION FX6 Spectra with the eVo-6 camera – resolution oriented camera ideal for publication**

### eVo-6 camera:

- Unrivalled custom made lens f/0.70
- Scientific grade CCD camera
- Grade 0, zero defect
- Image resolution: 20 megapixels
- Native resolution: 2838x2224
- -55° C maximum cooling differential from ambient
- -30°C absolute and regulated cooling via three stages Peltier thermoelectric cooler
- High Sensitivity reading (HSR) technology
- USB-3 connection

## Ease Of Use

One-Click-to-the-Image™  
Auto-exposure, Auto-focus  
Auto-lighting

## Hardware

Smart Darkroom technology:

- Motorised optical lens
- Motorised 7 positions filter wheel
- Software control of the lighting
- Automatic recognition of the sample position
- Automatic visible lighting adjustment

Steel and stainless steel darkroom for long lasting robustness. Wide access door with UV safety shut-off  
Built-in slide-out tray for interchangeable Pad.  
Built-in Spectra Capsules Adapter and capsules included

## Software

Free software for image acquisition with full GLP compliance. Molecular weight calculation, band quantification, colony counting, distance calculation, text annotation and image enhancement included.

CFR21 Part 11 ready

## Applications

Chemiluminescence and fluorescence Western, Northern or Southern blot. Choose Your FUSION FX Spectra model according to your applications:

UV: **365nm**

IR/NIR: **780nm - 640nm**

RGB: **640nm - 530nm - 480nm**

7 Channels: **440nm - 480nm - 530nm - 640nm - 680nm - 740nm - 780nm**

Optional applications:

DNA and RNA gels and fluorescence stain imaging with UV-Pad or Blue-Pad  
Colorimetric stained protein gels, X-Ray film, autorads, SSCP gels, colony dish and flask imaging with White-Light-Pad or UV-Pad + conversion screen

## Technologies & Innovation

Apps Studio  
3D Dynamics Scan  
SuperResolution  
Spectra Capsules  
PadBox™  
ImageMaster™ assistant  
Clarity™

## Options

Customize your FUSION FX Spectra with up to 7 Spectra Capsules from **UV 365nm - 440nm - 480nm - 530nm - 640nm - 680nm - 740nm up to 780nm**

- UV-Pad, Super-Bright-Pad, Sky-Light-Pad  
Blue-Pad, White-Light-Pad
- White light or blue light conversion screen
- Advanced Bio-1D quantification software
- CFR21 Part 11 Administration Software





# FUSION FX

*New Edge Generation  
The Unrivalled Sensitivity*

## Camera & Optics

**FUSION FX6 with the eVo-6 camera – resolution oriented camera ideal for publication**

### eVo-6 camera:

- Unrivalled custom made lens f/0.70
- Scientific grade CCD camera
- Grade 0, zero defect
- Image resolution: 20 megapixels
- Native resolution: 2838×2224
- -55° C maximum cooling differential from ambient
- -30°C absolute and regulated cooling via three stages Peltier thermoelectric cooler
- High Sensitivity reading (HSR) technology
- USB-3 connection

## Ease Of Use

One-Click-to-the-Image™  
Auto-exposure, Auto-focus  
Auto-lighting

## Hardware

Smart Darkroom technology:

- Motorised optical lens
- Motorised 7 positions filter wheel
- Software control of the lighting
- Automatic recognition of the sample position
- Automatic visible lighting adjustment

Steel and stainless steel darkroom for long lasting robustness. Wide access door with UV safety shut-off  
Built-in slide-out tray for interchangeable Pad.  
Built-in Spectra Capsules Adapter

## Software

Free software for image acquisition with full GLP compliance. Molecular weight calculation, band quantification, colony counting, distance calculation, text annotation and image enhancement included.

CFR21 Part 11 ready

## Applications

Chemiluminescence Western, Northern or Southern blot

### Optional applications:

DNA and RNA gels and fluorescence stain imaging with UV-Pad or Blue-Pad  
Colorimetric stained protein gels, X-Ray film, autorads, SSCP gels, colony dish and flask imaging with White-Light-Pad or UV-Pad + conversion screen  
Fluorescence Western blot with Spectra Capsules

## Technologies & Innovation

Apps Studio  
3D Dynamics Scan  
SuperResolution  
High Sensitivity Reading (HSR) technology  
PadBox™  
ImageMaster™ assistant  
Clarity™

## Options

Optional Spectra Capsules innovative concept for a customized choice of up to 7 powerful filtered optic light capsules:

**365nm UV - 440nm - 480nm - 530nm  
640nm - 680nm - 740nm - 780nm**

Covering a wide variety of application in the UV, Visible and the IR range.

- UV-Pad, Super-Bright-Pad, Sky-Light-Pad  
Blue-Pad, White-Light-Pad
- White light or blue light conversion screen
- Advanced Bio-1D quantification software
- CFR21 Part 11 Administration Software



# FUSION SOLO S

*New Edge Generation  
Build Your System As You Need*

## Camera & Optics

**FUSION Solo 6S with the eVo-6 camera – resolution oriented camera ideal for publication**

### eVo-6 camera:

- Unrivalled custom made lens f/0.70
- Scientific grade CCD camera
- Grade 0, zero defect
- Image resolution: 20 megapixels
- Native resolution: 2838x2224
- -55° C maximum cooling differential from ambient
- -30°C absolute and regulated cooling via three stages Peltier thermoelectric cooler
- High Sensitivity reading (HSR) technology
- USB-3 connection

## Ease Of Use

One-Click-to-the-Image™  
Auto-exposure  
Auto-focus  
Auto-lighting

## Hardware

Smart Darkroom technology:

- Motorised 7 positions filter wheel
- Software control of the lighting
- Automatic recognition of the sample position
- Automatic visible lighting adjustment

Steel and stainless steel darkroom for long lasting robustness. Wide access door with UV safety shut-off  
Built-in slide-out tray for interchangeable Pad.

## Software

Free software for image acquisition with full GLP compliance. Molecular weight calculation, band quantification, colony counting, distance calculation, text annotation and image enhancement included.

CFR21 Part 11 ready

## Applications

Chemiluminescence Western, Northern or Southern blot

### Optional applications:

DNA and RNA gels and fluorescence stain imaging with UV-Pad or Blue-Pad  
Colorimetric stained protein gels, X-Ray film, autorads, SSCP gels, colony dish and flask imaging with White-Light-Pad or UV-Pad + conversion screen  
Fluorescence Western blot with Spectra Capsules

## Technologies & Innovation

Apps Studio  
3D Dynamics Scan  
SuperResolution  
High Sensitivity Reading (HSR) technology  
PadBox™  
ImageMaster™ assistant  
Clarity™

## Options

Spectra Capsules Adapter: Upgradable Spectra Capsules innovative concept for a customized choice of up to 7 powerful filtered optic light capsules:

**365nm UV - 440nm - 480nm - 530nm  
640nm - 680nm - 740nm - 780nm**

Covering a wide variety of application in the UV, Visible and the IR range.

- UV-Pad, Super-Bright-Pad, Sky-Light-Pad  
Blue-Pad, White-Light-Pad
- White light or blue light conversion screen
- Advanced Bio-1D quantification software
- CFR21 Part 11 Administration Software



# FUSION SOLO X

*New Edge Generation  
Build Your System As You Need*

## Camera & Optics

**FUSION Solo 6X with the eVo-6 camera – resolution oriented camera, ideal for publication**

### eVo-6 camera:

- Unrivalled custom made lens f/0.84
- Scientific grade CCD camera
- Grade 0, zero defect
- Image resolution: 20 megapixels
- Native resolution: 2838x2224
- -55° C maximum cooling differential from ambient  
-30°C absolute and regulated cooling via three stages Peltier thermoelectric cooler
- High Sensitivity reading (HSR) technology
- USB-3 connection

## Ease Of Use

One-Click-to-the-Image™  
Auto-exposure  
Auto-lighting

## Hardware

Smart Darkroom technology:

- 5 sample tray positions
- Software control of the lighting
- Automatic visible lighting adjustment

Steel and stainless steel darkroom for long lasting robustness. Wide access door.

## Software

Free software for image acquisition with full GLP compliance. Molecular weight calculation, band quantification, colony counting, distance calculation, text annotation and image enhancement included.

CFR21 Part 11 ready

## Applications

Chemiluminescence Western, Northern or Southern blot

## Technologies & Innovation

Apps Studio  
3D Dynamics Scan  
High Sensitivity Reading (HSR) technology  
ImageMaster™ assistant



#### HEADQUARTER

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