

# EZ-Fluo™ Rapid Detection System

A fast, non-destructive, fluorescent staining-based system for microbial detection

- Rapid technology capable of providing results in 1/3 of the time required using traditional techniques
- Flexible approach based on standard membrane filtration and reduced incubation on media plate
- Non-destructive method, compatible with any ID technique
- Compact hardware, fits easily on any laboratory bench
- Cost effective solution for both routine and investigatory use



## Easy to integrate into any laboratory

The EZ-Fluo™ Rapid Detection System from Merck enables you to significantly reduce your time to result, address contamination events sooner, and therefore, gain better control of your manufacturing process. The EZ-Fluo™ System is a rapid florescent-based technology designed for fast quantitative detection of microorganisms over a broad range of filterable samples. This new system uses standard membrane filtration to detect viable and culturable microorganisms down to 1 CFU per sample. EZ-Fluo™ test results are easily comparable to compendial method test results, which facilitates the validation and the integration of this rapid system in any laboratory without causing disruption. Detected microbial contamination can be then identified using your current ID methodology.

## Faster product release

Today, more and more QC laboratories are switching to rapid methods for the detection of microbial contamination. This is because traditional methods require several days to provide results and therefore are of limited value when it comes to releasing product to the market faster, or to conducting quick investigations when necessary.

## Simple protocol using regular membrane filtration and incubation

The EZ-Fluo™ Rapid Detection System consists of a reader and staining reagents used in combination with regular 47 mm filtration membranes and standard media. Optimal results can be obtained using Merck's membranes and comprehensive media portfolio. The use of the camera (optional) offers traceability of results and comfort when reading.

### 1. Sample preparation

Filtration using EZ-Fit® Filtration Unit and media plates: Simply filter your sample the same way you prepare your current samples and incubate the membrane on your regular media type.



For a perfect contact of the membrane to the agar use our ReadyPlate™ 55 agar plates



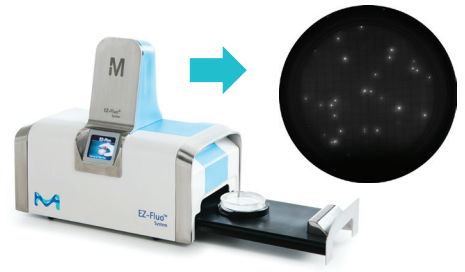
### 2. Fluorescent staining

Transfer membrane to a Petri-Pad Petri dish wetted with staining reagent and incubate for 30 minutes.



### 3. Counting CFUs

Count fluorescent colonies through the window of the EZ-Fluo™ Reader or use the camera (optional) to view the colonies on your computer screen.



## Applications

The EZ-Fluo™ system can detect and quantify microbial contamination in any filterable sample. Potential applications are numerous and include testing of the following sample types:

- Raw materials
- In-process samples
- Final product
- Environmental samples

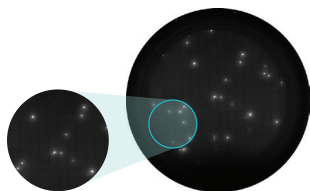


## Reincubation for microorganism identification

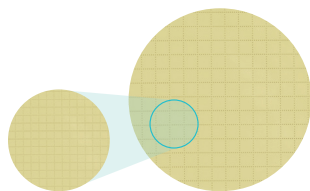
The EZ-Fluo™ System is a non-destructive method that enables you to continue to grow the microorganisms after they have been stained, in order to identify them using any standard ID technology. This is a tremendous advantage compared to other rapid test systems that do not allow ID of microorganisms.

### Reincubation step

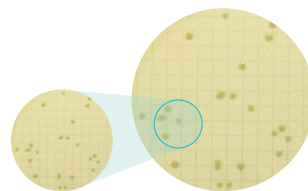
Place membrane on a prefilled agar media cassette and reincubate. Collect and isolate the microorganisms and identify using any existing ID methodology.



Visualize plate after staining. View of membrane in the reader.



Colonies are not visible outside the reader.



After reincubation, colonies are visible to the eye.

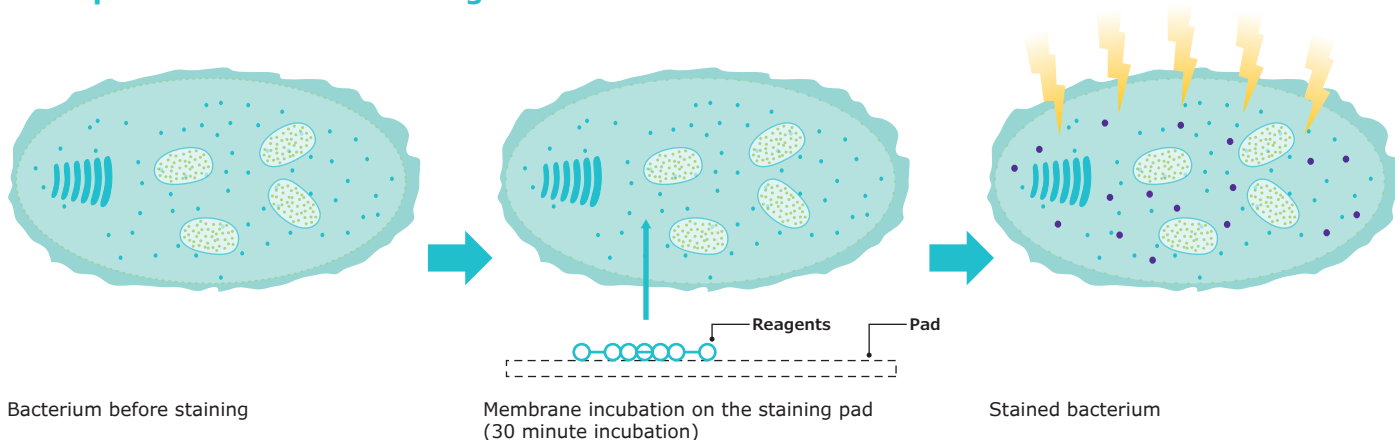
**Example:** Tested sample of in-process, non-sterile water using the EZ-Fluo™ system. After detection, membrane was re-incubated for full growth and identification.

## Non-destructive technology

The EZ-Fluo™ method is based on a unique, non-destructive, fluorescent marker developed by Merck. After filtration and incubation, the staining reagent is applied, and any viable and culturable microorganisms are stained. The reagent is initially non-fluorescent, but an intracellular enzyme that is active only as part of the metabolic processes of living cells, cleaves the substrate to liberate the fluorophore.

As fluorophore accumulates inside the cells, the signal is naturally amplified. In the EZ-Fluo™ reader, the cells are exposed to the excitation wavelength of the fluorescent dye so that they can be visually counted. The fluorescence allows much smaller colonies to be seen than are visible by the naked eye.

### Principle of fluorescent staining



## Specifications

		Reader	Camera
<b>Dimensions (nominal)</b>	Length	24.9 cm (9.8 in.)	9.7 cm (3.8 in.)
	Width	14.2 cm (5.6 in.)	6.6 cm (2.6 in.)
	Height	12.5 cm (4.9 in.)	11.4 cm (4.5 in.)
<b>Weight (nominal)</b>		4.4 kg (9.7 lbs.)	0.5 kg (1.1 lb.)
<b>Supply Voltage</b>	Input	100 V–240 V 50 Hz–60 Hz	Powered by the computer
	Output	24 V direct current	
<b>Power Consumption</b>	Nominal	670 mA	200 mA
	Maximal	2080 mA	430 mA
<b>Power*</b>	Nominal	16 watts	1 watt
	Maximal	50 watts	2.15 watts
<b>Environmental Operating Temperature</b>	15 °C to 40 °C (59 °F to 104 °F)		
<b>Humidity</b>	<90%		
<b>Altitude</b>	<3,000 m (9,842 ft.)		
<b>Regulatory Information</b>	We certify that the EZ-Fluo™ Reader and the EZ-Fluo™ Camera were designed and manufactured in application of the following European Council directives: <ul style="list-style-type: none"> <li>• Electromagnetic compatibility 2004/108/EC</li> <li>• Restriction of the use of certain Hazardous Substances in electrical equipment (RoHS) 2002/95/EC</li> </ul>		

### Materials of Construction

Housing	Painted aluminum sheet 1050	
Optical chamber	304 L stainless steel	
Handle	304 L stainless steel	
Optical filter	Glass	
LED protector	Transparent polycarbonate	
Foot	Polyvinylchloride (PVC)	
Labels	Polyester	
Screen	Protector polyester	
Front plate		304 L stainless steel
Housing		Painted aluminum alloy
Window		Glass
Light guard		Clear polymethyl methacrylate (PMMA)

\*The reader is supplied with its power cord according to region.

## Support and services

Merck provides a comprehensive range of support and services to help you save your QC resources and facilitate the implementation of your EZ-Fluo™ system into your daily testing routine. Our highly experienced service teams can assist you with the following activities:

- Feasibility study and on-site evaluation
- Method development and method development consulting
- Equipment installation
- Operator training
- On-site system qualification (IQ/OQ)
- Yearly preventive maintenance
- Service plan

For further information on our support and services offering, please contact your local sales representative.



## Ordering Information

Description	Qty./Pk	Cat. No.
<b>EZ-Fluo™ System Kits</b>		
EZ-Fluo™ System standard kit, including 1 reader, 1 camera and installation CD	1	EZFKIT001WW*
<b>EZ-Fluo™ Hardware</b>		
EZ-Fluo™ reader	1	EZFREAD01WW*
EZ-Fluo™ camera	1	EZFCAM001
<b>Consumables</b>		
EZ-Fluo™ Reagent Kit	57 tests	EZFREAG57
EZ-Pak® Filters 0.45 µm 47 mm black gridded	600	MSP000814
EZ-Pak® Filters 0.45 µm 47 mm white gridded	600	EZHAWG474
S-Pak® Filters 0.45 µm 47 mm black gridded	600	HABG047S6
S-Pak® Filters 0.45 µm 47 mm white gridded	600	HAWG047S6
Petri-Pad™ Petri dish, sterile, 47 mm	150	PD20047S0
Petri-Pad™ Petri dish, sterile, 47 mm	600	PD20047S5
<b>EZ-Fluo™ Accessories</b>		
EZ-Pak® Membrane Dispenser	1	EZDISP001
EZ-Pak® Dispenser Curve	1	EZCURVE01
EZ-Pak® Dispenser Curve (AC only)	1	EZCURVEAC
EZ-Stream® Pump	1	EZSTREAM1
Silicone Hose for EZ-Stream® Pump Autoclavable Internal diameter: 9.5 mm (3/8 in.) Length: 5.0 m (196.8 in.)	1	STREAMTUB
PVC Hose for EZ-Stream® Pump Not autoclavable Internal diameter: 9.5 mm (3/8 in.) Length: 3.0 m (118.1 in.)	1	XX6700034
Filter forceps	3	XX6200006P
Traceability labels Label Printing Software: available at <a href="http://EMDMillipore.com">EMDMillipore.com</a>	1000	TRLABEL01

\*Country code to be defined at ordering step.

EZ-Fit® Filtration Units blue base	Qty./Pk	Cat. No.
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	EFHAW100B
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, individual packaging	48	EFHAW100I
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging	48	EFHAW250B
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, individual packaging	48	EFHAW250I
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	EFHAB100B
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, individual packaging	48	EFHAB100I
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	EFHAB250B
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, individual packaging	48	EFHAB250I

The blue EZ-Fit® Filtration Units come with pad.

EZ-Fit® Filtration Units pink base	Qty./Pk	Cat. No.
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 100 mL funnel, individual packaging, no pad	48	EFHVV10IS
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 100 mL funnel, multi packaging, no pad	48	EFHAW10MS
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging, no pad	48	EFHAW25BS
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, multi packaging, no pad	48	EFHAB10MS
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging, no pad	48	EFHAB25BS
EZ-Fit® Filtration Unit, white membrane, 0.22 µm pore size, 100 mL funnel, multi packaging, no pad	48	EFGSW10MS
EZ-Fit® Filtration Unit, white membrane, 0.22 µm pore size, 100 mL funnel, individual packaging, no pad	48	EFGSW10IS
EZ-Fit® Filtration Unit, white membrane, 0.8 µm pore size, 100 mL funnel, bulk packaging, no pad	48	EFAAW10BS
EZ-Fit® Filtration Unit, white membrane, 0.8 µm pore size, 250 mL funnel, bulk packaging, no pad	48	EFAAW25BS
EZ-Fit® Filtration Unit, black membrane, 0.8 µm pore size, 100 mL funnel, bulk packaging, no pad	48	EFAAB10BS
EZ-Fit® Filtration Unit, black membrane, 0.8 µm pore size, 250 mL funnel, bulk packaging, no pad	48	EFAAB25BS

The pink EZ-Fit® Filtration Units come without pad.

## The EZ-Fluo™ rapid detection system and accessories



[MerckMillipore.com/EZ-Fluo](https://www.MerckMillipore.com/EZ-Fluo)

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Germany: 069 86798021	Switzerland: 0848 645 645
Italy: 848 845 645	United Kingdom: 0870 900 4645

For other countries across Europe, please call: +44 (0) 115 943 0840

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Merck KGaA  
Frankfurter Strasse 250  
64293 Darmstadt, Germany

