



## Membrane-Filtration Sample Preparation Technology

Revolutionize the way you prepare, culture, and analyze biological samples; eliminate the risk of contamination, minimize the volume of plastic associated with each assay, and reduce the preparation time with a combined Sample Preparation Device and enclosed Filter Assay Cartridge.



- Product includes enclosed Filter Assay Cartridges (available in 47mm, 35mm, 25mm, 16mm) and Sample Preparation Device. \*Optional portable vacuum pump for field use.
- Self-contained filter membrane never leaves the enclosed Filter Assay Cartridge thereby eliminating the risk of contamination.
- Filter fluid sample, capture organisms, rinse (if required), aspirate reagents or culture media, incubate, and analyze outgrowth- all without opening the device or exposing it to the external environment.
- No need to transfer sample from filtration unit to another vessel for culture.
- Air vent in cartridge is protected by microbial-barrier membrane keeping out airborne contaminants.
- Attach directly to standard vacuum source or conduct tests in the field with portable pump.
- Filter assay cartridge can be opened to conduct confirmation/supplementary testing after initial culture (colony recovery). \*Requires additional opener accessory.

- Attach directly to standard vacuum source or conduct tests in the field with portable pump
- Sample volumes of 0.1mL to 1,000mL
- Enumeration & identify colony growth
- Aseptic collection of the sample
- Compatible with 47mm, 35mm, 25mm, and 16mm filter assay membranes
- No technical skill/training required
- Reduce preparation time & save on cost/test
- Use same as in-line filter without air-locking
- Reduce volume of assay material to be shipped, stored, decontaminated/disposed
- Eliminate risk of contamination
- Consistent with regulated procedures for membrane filtration.

### Applications

This innovative assay system for preparing biological samples markedly improves the current Membrane Filtration (MF) approach to microbiological analyses and cultured cell assays. The MF method is widely used in healthcare-related testing for identification and enumeration of cultured organisms as colony-forming-units, specifically, in the pharmaceutical-, clinical-, sterility-, toxicity-, and water-testing industries among many others. Any improvements that can be obtained in testing protocol frees up time, space, and money in a busy laboratory. The proven design of Photonic BioSystems' self-contained membrane filter bacterial assay system is a leap forward in improving the efficiency, effectiveness, and overall standard for MF assays. Removing all unnecessary steps and simplifying the entire process of biological sample preparation not only makes conventional laboratories more productive, it also opens the door for mobile- and in-the-field testing which is currently not practical using conventional MF techniques.

#### Water:

- Drinking
- Source
- Waste & Discharge
- Bottled

#### Medical:

- Infection Control
- Antibiotics sensitivity
- Surveillance testing

#### Sterility:

- Pharma QA
- Detoxification testing
- Product testing

#### Toxicity:

- Homeland security
- Water
- Pharma
- Cosmetics

#### Agriculture:

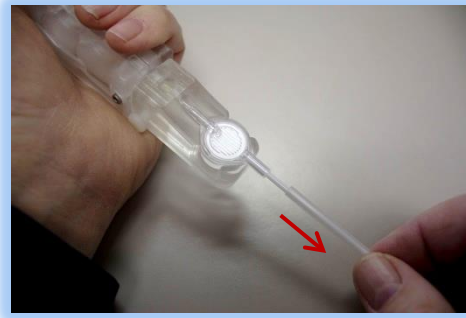
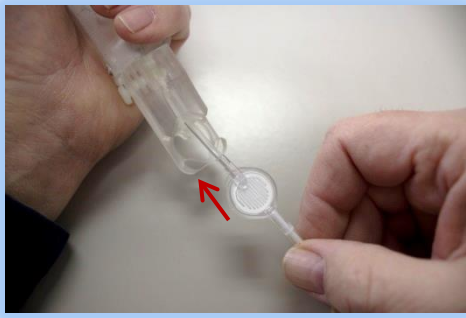
- Dairy
- Feed QC
- Biosecurity
- Discharge

#### Food/Beverage:

- Process QC & HACCP
- Food testing
- Milk/juice

## Instructions for Use

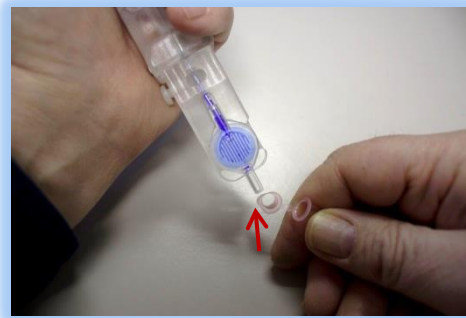
### Sampling Liquid Using 16mm Filter Assay Cartridge



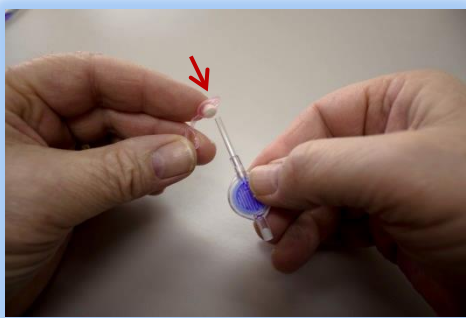
1. Insert Filter Assay Cartridge into Sample Preparation Device and remove protective sheath exposing sterile tip.



2. Filter sample, then aspirate media.



3. Remove tip and apply sealant to inlet port.



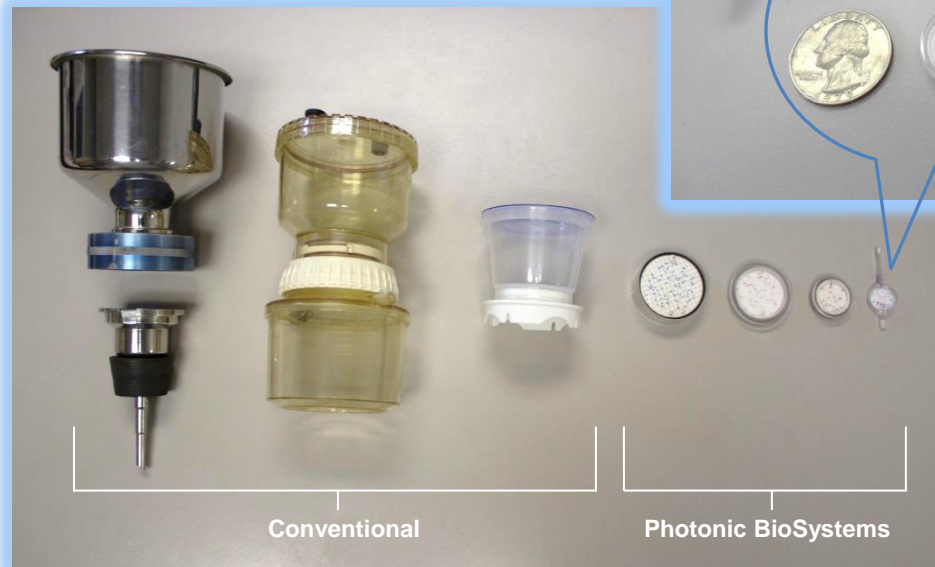
4. Remove Filter Assay Cartridge and apply sealant to outlet port. Label and incubate.

\* *Video demonstration available at [www.photonicssystems.com](http://www.photonicssystems.com)* \*

## Comparison to Conventional Sample Preparation

Photonic BioSystems' MF Sample Preparation is significantly more compact, efficient, and cost effective

This product reduces the equipment, consumable materials, setup time, and technical skill needed to prepare MF samples compared to conventional approaches. Moreover, it removes the risks (associated with classic filtration and manipulation of the sample membrane) enabling a more efficient, stream-lined procedure for preparing, culturing and analyzing samples. This also permits sample preparation to be conducted in non-traditional settings, outside the laboratory and without a protected hood.



**“Evolution of  
Membrane Filtration  
Sample Preparation”**

## Specifications

\*Applicable to 16mm Sample Preparation Device Head using 16mm Filter Assay Cartridge (0.45  $\mu\text{m}$  pore size)

### Materials of Construction

Filter Assay Cartridge  
Filter Media: Polyethersulfone or Hydrophilic Cellulose Acetate  
Housing: Gamma resistant acrylic  
Vent: 0.02  $\mu\text{m}$  hydrophobic PTFE

Sample Preparation Device  
Housing: Modified gamma resistant acrylic  
Tubing: Polyvinyl Chloride

### Pore Size

0.45  $\mu\text{m}$ ; 0.2, 0.8, 1.2  $\mu\text{m}$  also available

### Effective Filtration Area

2  $\text{cm}^2$

### Dimensions

Filter Assay Cartridge: 40 x 20 x 7mm (1.5 x 0.8 x 0.3 in.)  
Sample Prep. Device: 170 x 25 x 25mm (6.7 x 1 x 1 in.)

### Priming Volume

<0.4 mL

### Inlet/Outlet Connections

Hose barb

### Maximum Operating Temperature

55  $^{\circ}\text{C}$  (131  $^{\circ}\text{F}$ )

### Maximum Operating Pressure

3.1 bar (45 psi)

### Minimum Water Bubble Point

2.48-3.31 bar (36-48 psi)

### Water Flow Rate

38.0-100.0 (mL/min/ $\text{cm}^2$  @ 0.7 bar, 10 psi)

### Maximum Vacuum

63.5 cm Hg (25 in. Hg)  
(Vacuum Use Only)

### Pyrogenicity

< 0.25 EU/mL using the LAL test method

### Sterilization

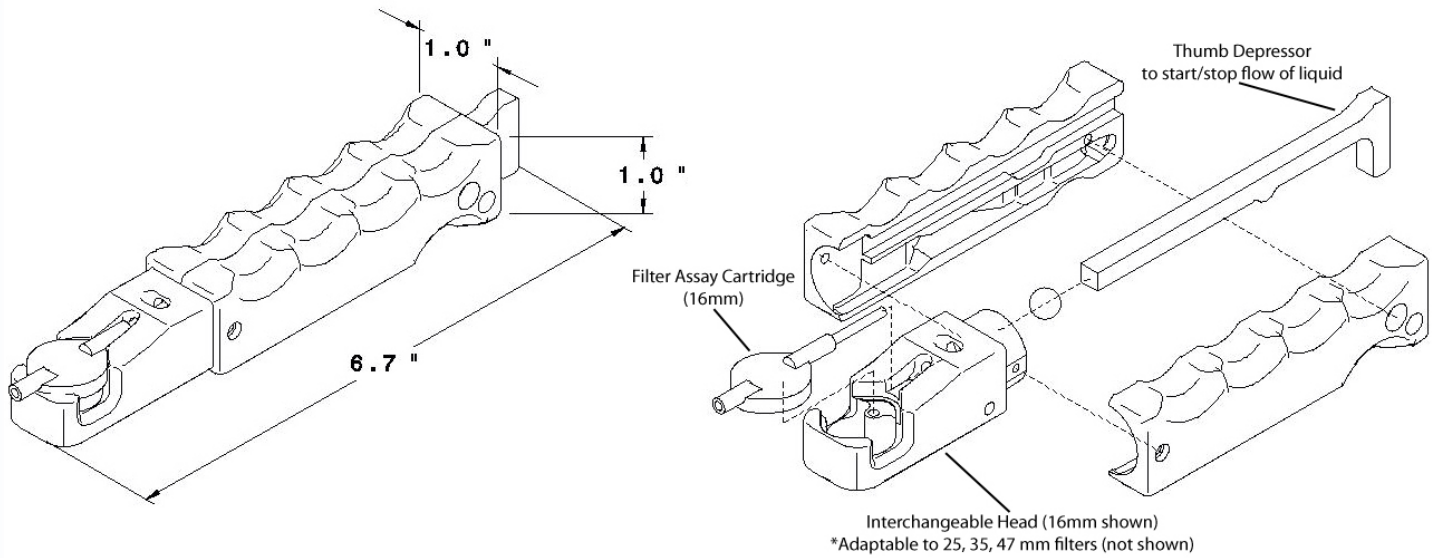
Gamma irradiation

### Biological Safety

Materials of construction pass USP Biological Reactivity Tests, *In Vivo* <88>

## Schematics

### 1. Sample Preparation Device w/ 16mm Filter Adapter Head



### 2. Filter Assay Cartridge (16mm) \*Similar form factor for other diameter membrane filters

