Life Sciences

User Guide

Sentino™ Microbiology Pump

Product Numbers: 13180, 13181

For laboratory use. Not for use in a manner other than indicated.



Filtration. Separation. Solution.SM

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Introduction

Application and Intended Use

The Membrane Filter (MF) Technique is a method of analyzing aqueous samples for microbial contamination. A fluid sample is pulled through a membrane filter and the filter is placed on growth media and incubated. After the prescribed incubation period, colonies are counted and reviewed for appropriate morphology.

Pall Life Sciences' Sentino Microbiology Pump is ideal for microbiological evaluations of aqueous samples by MF Technique. This simple, compact unit will optimize and maximize your workspace environment by eliminating the need for separate manifold, pump, and excess tubing. The Sentino Pump is designed to use peristaltic action to draw the sample through the filter and send filtrate directly to drain or waste collection. Operating parameters are preset and fixed to best satisfy requirements for MF Technique described in EPA, ISO, and ASTM methods; thereby providing conditions comparable to a standard manifold set-up.

Ordering Information

Sentino Microbiology Pump

Part Number	Description	Pkg
13180	System for North America (1) power transformer (1) power cord with NEMA 5-15P plug (1) Fluid Path (1) User Guide CD	1/pkg
13181	System for Locations Outside North America (1) power transformer (1) European power cord with CEE 7/7 plug (1) UK power cord with BS1363 plug (1) Fluid Path (1) User Guide CD	1/pkg

Accessories

Part Number	Description	Pkg
4861	Fluid Path, disposable, for use with MicroFunnel™ filter funnels	10/pkg

Product Terminology

Keypad

1. Power On/Off button
2. Main power indicator
3. Pulse button
4. Fault indicator
5. Battery status indicator

Body

6. Stage with adapter guide
7. Drive tube guide
8. Product identification label
9. Power entry socket

Pump Head

10. Loading door
11. Slot for drive tube

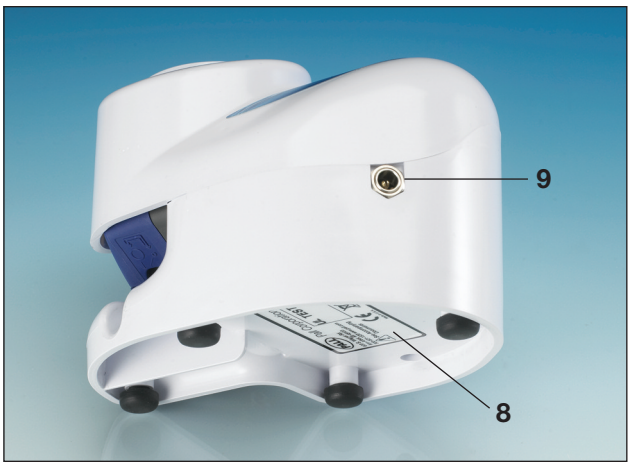
Power

12. Transformer power entry plug
13. Transformer input interface
14. Power cord

Fluid Path

15. Filter funnel adapter
16. Drive tube









Symbols Referenced



See manual for instructions.



Pinch point.

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The Sentino Microbiology Pump, a product of Pall Corporation, is in conformity with the requirements of the European Directive 2004/108/EC and associated amendments with regards to Electromagnetic Compatibility, and the European Directive 2006/42/EC and associated amendments with regards to Machinery. (See EC Declaration of Conformity section.)



Reuse, recycling and recovery. The materials used in this unit are RoHS compliant. The presence of this label on a product means that the product contains electrical or electronic materials; and, therefore, it should not be disposed of as unsorted waste but instead be treated separately. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health. Within the European Union, users are urged to recycle such products when being replaced with a newer version or when they have outlived their useful lives. However, as the legislation and facilities vary throughout the member states, please visit **www.pall.com/weee** to arrange for proper disposal of used equipment.

Safety Precautions

To protect personal safety and ensure correct use of this equipment, be sure you read and understand this guide before use.

The following terms are used:

DANGER



To designate a condition which MAY involve mortal danger or serious injury.

CAUTION



To designate a condition which MAY involve serious injury or destruction of the equipment involved.

NOTE



To designate a condition which MAY involve faulty operation of the equipment thus causing poor performance.

Universal Precautions

Appropriate care should always be taken when using electrical equipment around aqueous solutions in the laboratory. Use of personal protective equipment, such as gloves, gowns, laboratory coats, and protective eyewear, help to reduce risk of exposure and is recommended. Sanitization of equipment as directed in this manual is essential for maintaining optimum performance. Proper disposal of Fluid Paths in accordance with biohazard safety procedures is recommended where applicable.



Opening or disassembly of product enclosure may involve electrical shock. Only authorized personnel should disassemble product.



Do not immerse.



Only use parts approved by the manufacturer.

For laboratory use only.

Keypad buttons on this product intended for finger touch only.

Only use recommended solutions for cleaning/sanitization.

The unit is always on standby with battery power. Avoid pressing power or pulse buttons while cleaning pump head or loading Fluid Path.

Prolonged use in environments exceeding 30 ºC (86 ºF) may cause overheating.



The device utilizes a peristaltic pump drive which may cause a pinch point if operated with the loading door open.

Return product in original packaging for warranty repair. Warranty valid only when used in accordance with this User Guide.

Keypad and Symbols

MAIN POWER INDICATOR

A green LED will illuminate when the pump is plugged into the power transformer and VAC power source. This LED will not be illuminated when operating on battery power.

POWER ON/OFF

Press the Power On/Off button to turn on the pump. Press the Power On/Off a second time to turn off the pump.

PULSE OPERATION

The pump will operate only while the button is pressed. This feature is ideal for small fluid volumes that require momentary filtration intervals.

FAULT INDICATOR

This symbol will illuminate yellow upon detection of a fault in the system operation. Flashing indicates battery is running low and solid illumination indicates other faults detected. Consult the Troubleshooting section of this User Guide.

BATTERY INDICATOR

When plugged into the power transformer and VAC power source, this symbol will indicate the battery is charging by an illuminated blue LED. When the battery is fully charged, the blue LED will turn off.

Preparing System for Use

*Save original packaging for service and warranty repairs. Visit **www.pall.com/sentino** for a video on system preparation and operation.*

Device Set-Up

Connecting power supply and charging



1. Position the Sentino Microbiology Pump on a laboratory bench.
2. Attach power entry plug from power transformer into the power socket. Connect power cord to the input interface on the power transformer, then plug power cord into appropriate electrical outlet having 100-240 VAC supply.
3. Confirm Main Power Indicator is illuminated. Battery Status Indicator should be illuminated blue to indicate battery is charging.
4. The pump can be used while on the power transformer as battery is charging.
5. Upon initial use or when device has been in storage for a long period of time, completely charge battery (typically 4-5 hours). When not in use, pump should remain connected to main power to ensure full battery charge is available at time of use.

If the battery has been fully discharged, the pump will turn on when initially connected to power source. Press power On/Off button to turn off pump and continue to use or charge.

Fluid Path Installation

The Sentino Microbiology Pump is designed to interface with Pall's disposable Fluid Path. The Fluid Path will remain secure during filter funnel loading and unloading. A guide on the pump housing helps position the tubing correctly inside the device without the use of any tools.

The device is designed for use with Pall's Fluid Path only.

The unit is always on standby with battery power. Avoid pressing power or pulse buttons while loading Fluid Path.

Use of tubing not recommended by Pall Corporation may cause damage to pumping mechanism, reduce performance, or cause tube breakage. This will void all manufacturer warranties.

The device utilizes a peristaltic pump drive which may cause a pinch point if operated with the loading door open.

Loading



1. With unit positioned on benchtop, open pump loading door fully.
2. Slide adapter into the guide on the pump housing until it is firmly seated.
3. Tuck the tubing into the slot in the pump head and position the tube into the guide slot in the base.
4. Remove tubing slack by firmly pulling the tubing against the rollers as you close the pump loading door to a snap-closed position.
5. Sanitize Fluid Path before use. See Pump Operation.

NOTE

If pump head fails to rotate when turned on, then turn off the pump, open the pump head door, and repeat Step 4.

Pump Operation

Operation is the same whether powered by the internal battery or using the power transformer and power cord.

If the loading door is open during operation, no filtration or pumping will occur.

Visit www.pall.com/sentino for a video on system preparation and operation.

If the loading door is open during operation, rotation of the rollers may present an accessible pinch point to the user.

Filtration

1. Place Pall filter funnel onto adapter on pump stage.
2. Pour sample into filter funnel.

On/Off operation

3a. To start filtration, press and release the power On/Off button.

3b. To stop filtration, press and release the power On/Off button again.

OR

Pulse or momentary operation

3a. Press and hold the pulse button to perform momentary filtration.

3b. Release the pulse button to stop filtration.

4. Perform rinses in the same manner as sample filtration.

Maintenance

Do not immerse.

The device is designed for use with Pall's Fluid Path only.

The unit is always on standby with battery power. Avoid pressing power or pulse buttons while cleaning pump head.

Use of tubing not recommended by Pall Corporation may cause damage to pumping mechanism, reduce performance, or cause tube breakage. This will void all manufacturer warranties.

The device utilizes a peristaltic pump drive which may cause a pinch point if operated with the loading door open.

Visit www.pall.com/sentino for a video on system preparation and operation.

Cleaning Body and Pump Head

- May be wiped down with a towel moderately soaked in the following common laboratory sanitizing solutions:
  - 70% isopropyl alcohol (IPA)
  - 10% bleach

Sanitizing the Fluid Path

- The Fluid Path should be changed at least once a week.
- For optimal contamination control, daily replacement of Fluid Path is recommended.
- Upon initial installation of the Fluid Path:
  - Run 70% IPA through the Fluid Path for 5 seconds
  - Pump residual IPA through the tube
- If the Fluid Path is used for more than one day:
  - At the end of the filtration session, run 70% IPA through the Fluid Path for 5 seconds
  - Pump residual IPA through the tube
  - Open the pump head loading door to relieve the pinch of the rollers on the drive tube

Troubleshooting



This symbol on the unit is backed with a yellow LED and will illuminate to indicate the device has sensed a condition in which performance has been impacted and the user should consult User Guide for troubleshooting.

Problem	Cause	Corrective Action
Plugged into main power source but green main power indicator not illuminated.	Incorrect power transformer.	Use power transformer supplied with pump.
	Incorrect power source.	Check that power source supplies 100-240 VAC.
Pump plugged into main power but green main power indicator not illuminated and yellow fault indicator is illuminated.	Obstruction in pump head.	Check that drive tube slot in pump head is free of foreign objects.
		Verify Fluid Path is properly loaded. See Preparing System for Use, Fluid Path Installation, Loading.
	Pump over temperature limit.	Check the temperature of the operating environment and allow pump to cool.
Pump slowing down with or without yellow fault indicator flashing.	Battery discharging.	Continue filtration using power transformer plugged into main power source until battery is fully charged.
Yellow fault indicator flashing and unit not operating.	Battery is discharged.	Continue filtration using power transformer plugged into main power source until battery is fully charged.
Pump will not turn on, no yellow fault indicator.	Battery is discharged.	Recharge battery. If problem is not corrected, call for service.
Pump head not rotating, yellow fault indicator illuminated.	Obstruction in pump head.	Check that drive tube slot in pump head is free of foreign objects.
		Verify Fluid Path is properly loaded. See Preparing System for Use, Fluid Path Installation, Loading.
	Pump over temperature limit.	Check the temperature of the operating environment and allow pump to cool.
Pump head rotating but fluid is not filtering.	Pump head loading door is open.	Verify Fluid Path is properly loaded and loading door is securely closed. See Preparing System for Use, Fluid Path Installation, Loading.
	Fluid too viscous.	Consider whether sample can be diluted with sterile buffer to facilitate filtration.
	Fluid too particulate-laden.	Consider whether MF Technique is the appropriate method for microbial evaluation for the heavy particulate load or process sample in multiple aliquots to facilitate filtration.

If the above corrective actions do not remedy the problem, contact manufacturer for service or warranty.

Service

Save original packaging for service and warranty repairs.

Pall does not recommend any service be performed on this device other than by the manufacturer.

Contact Pall Life Sciences for technical support, warranty, and service inquiries at 800.521.1520 (inside USA and Canada), (+)800.PALL.LIFE (outside USA and Canada) or LabSupport@pall.com.

Specifications

Materials of Construction
Housing Material: Polycarbonate ABS-blended polymer
Keypad and Label: Polyester
Pump Head: PEI with PTFE-filled PBT rollers
Fluid Path Adapter: Polypropylene
Hose Material: Thermoplastic elastomer

Dimensions
Length: 13.6 cm (5.4 in.)
Width: 9.5 cm (3.7 in.)
Height: 10.4 cm (4.1 in.)
Weight: 680 g (1.5 lbs.)
Hose Dimensions: 4.8 mm (3/16 in.) ID x 7.9 mm (5/16 in.) OD [1.6 mm (1/16 in.) wall thickness]

Temperature Range
Operation: 15-30 °C (59-86 °F)
Storage: -15-45 °C (5-113 °F)
Fluid Path should be allowed to equilibrate to operation range before use.

Battery
Voltage: 12.0 V
Type: NiMH (nickel metal hydride)

DC Supply
Voltage: 24.0 V

AC/DC Power Transformer
24 VDC 1.6 Amp 100-240 VAC, 47-63 Hz
Input Interface: IEC 320 3-pin socket
Output Interface (Power Entry Plug): 2.5 mm barrel jack

Power Cord
13180: IEC 320 connector and NEMA 5-15P grounded plug
13181: IEC 320 connector and European CEE 7/7 plug, IEC 320 connector and UK BS1363 plug

Disposal Instructions

Reuse, recycling and recovery. The materials used in this unit are RoHS compliant. The presence of this label on a product means that the product contains electrical or electronic materials; and, therefore, it should not be disposed of as unsorted waste but instead be treated separately. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health. Within the European Union, users are urged to recycle such products when being replaced with a newer version or when they have outlived their useful lives. However, as the legislation and facilities vary throughout the member states, please visit **www.pall.com/weee** to arrange for proper disposal of used equipment.

Pall Corporation

EC Declaration of Conformity

CE

Product Description: **Sentino™ Microbiology Pump**
Product Part Number(s): **13180 and 13181**

The Sentino Microbiology Pump, a product of Pall Corporation, is in conformity with the requirements of the European Directive 2004/108/EC and associated amendments with regards to Electromagnetic Compatibility, and the European Directive 2006/42/EC and associated amendments with regards to Machinery.

This declaration is based upon testing the compliance of the product against the limits of the following standards:

EN 61326-1: 2006 Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements – Part 1: General Requirements

EN 60204-1:2006 Safety of Machinery – Electrical Equipment of Machines – Part 1: General Requirements

and assessing the compliance of the product to these harmonized standards:

EN 12100-1: 2003 Safety of Machinery – Basic Concepts, General Principles for Design – Part 1 Basic Terminology, methodology

EN 12100-2: 2003 Safety of Machinery – Basic Concepts, General Principles for Design – Part 2 Technical principles and specifications

A risk assessment has been performed and documented in accordance with EN 14121-1:2007 Safety of Machinery – Principles for Risk Assessment.

Signed: C D Durant Date: March 25, 2011

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For and on behalf of Pall Europe Limited



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