

PHILIPS

Care and Cleaning Instruction

IntelliVue MP 20-90 monitors

Use only the Philips-approved substances and methods listed in this chapter to clean or disinfect your equipment. Warranty does not cover damage caused by using unapproved substances or methods.

Philips makes no claims regarding the efficacy of the listed chemicals or methods as a means for controlling infection. Consult your hospital's Infection Control Officer or Epidemiologist. For comprehensive details on cleaning agents and their efficacy, refer to "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public-Safety Workers" issued by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia, February 1989. See also any local policies that apply within your hospital and country.

General Points

Keep your monitor, modules, Multi-Measurement Module, MMS extensions, Flexible Module Rack, cables and accessories free of dust and dirt. After cleaning and disinfection, check the equipment carefully. Do not use if you see signs of deterioration or damage. If you need to return any equipment to Philips, decontaminate it first.

Observe the following general precautions:

- Always dilute according to the manufacturer's instructions or use lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment or any accessories in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Never use bleach.

WARNING

If you spill liquid on the equipment, battery or accessories, or they are accidentally immersed in liquid, contact your service personnel or Philips service engineer. Do not operate the equipment before it has been tested and approved for further use.

The general care and cleaning information given here meets the requirements of Aspect Medical Systems for their BIS measurement devices.

Cleaning the Monitor

Clean with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap, a diluted non-caustic detergent, tenside, ammonia- or alcohol-based cleaning agent. Do not use strong solvents such as acetone or trichloroethylene.

Take extra care when cleaning the screen of the monitor because it is more sensitive to rough cleaning methods than the housing. Do not permit any liquid to enter the monitor case and avoid pouring it on the monitor while cleaning. Do not allow water or cleaning solution to enter the measurement connectors. Wipe around, not over, connector sockets.

CAUTION

To clean the touch-enabled display, disable the touch operation by switching off the monitor during the cleaning procedure, or by selecting and holding the Main Screen key until the padlock symbol appears on it, indicating that touch operation is disabled. Select and hold again to re-enable touch operation. Unplug a mouse before cleaning it. Switch off the monitor to disable an attached SpeedPoint Device before cleaning the device.

Recommended cleaning agents are:

Tensides (dishwasher detergents)	Edisonite Schnellreiniger®, Alconox®
Ammonias	Dilution of Ammonia <3%, Window cleaner
Alcohol	Ethanol 70%, Isopropanol 70%, Window cleaner

Disinfecting the Monitor

CAUTION

Solutions: Do not mix disinfecting solutions (such as bleach and ammonia) as hazardous gases may result.

Hospital policy: Disinfect the product as determined by your hospital's policy, to avoid long-term damage to the product.

Clean equipment before disinfecting. Recommended types of disinfecting agents are:

Base	Approved Agents
Alcohol	Ethanol up to 70% 1- and 2- Propanol up to 70%
Aldehyde	Glutaraldehyde up to 3.6%

Sterilizing the Monitor

Sterilization is not recommended for this monitor, related products, accessories or supplies unless otherwise indicated in the Instructions for Use that accompany the accessories and supplies.

Cleaning, Sterilizing and Disinfecting Monitoring Accessories

To clean, disinfect and sterilize reusable transducers, sensors, cables, leads, and so forth, refer to the instructions delivered with the accessory.

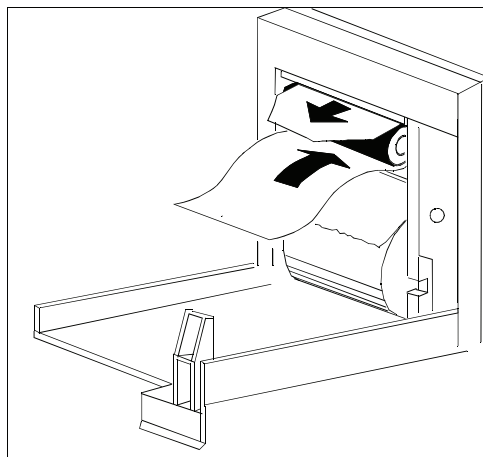
Cleaning the SO₂ Optical Module

The outside of the optical module can be cleaned as described under Cleaning the Monitor. The compartment with the fibre-optic connection can only be cleaned with a dry cloth. Do not introduce any moisture into this compartment.

Cleaning the Recorder Printhead (M1116B only)

If you run recordings at low speed (1 or 2cm/min) for extended periods, deposits of paper debris may collect on the print head, making recordings unevenly fainter in horizontal stripes.

- 1 Remove the recorder.
- 2 Open the recorder door and un-thread the paper from behind the rubber roller.
- 3 Tear off or roll up the excess paper into the roll chamber to get it out of your way.
- 4 Thread the cloth cleaning strip instead of paper around the rubber roller until approximately two inches of the strip comes out from the top of the roller.



- 5 Close the recorder door, aligning both ends of the strip over the top of the door.
- 6 Holding the top end of the cleaning strip between your thumb and forefinger, pull the strip through and out of the recorder.
- 7 Open the door and ensure that the paper cavity is dust-free. Re-thread the paper and replace the recorder.

Cleaning Batteries and the Battery Compartment

MP20/MP30 MP40/MP50 Only

Wipe with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap. Do not use strong solvents. Do not soak the battery.

IntelliVue MX series monitors

Use only the Philips-approved substances and methods listed in this chapter to clean or disinfect your equipment. Warranty does not cover damage caused by using unapproved substances or methods.

Philips makes no claims regarding the efficacy of the listed chemicals or methods as a means for controlling infection. Consult your hospital's Infection Control Officer or Epidemiologist. For comprehensive details on cleaning agents and their efficacy, refer to "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public-Safety Workers" issued by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia, February 1989. See also any local policies that apply within your hospital and country.

General Points

These instructions are valid for the monitor and all modules and extensions except for the special cases where alternative instructions are contained in this chapter.

Keep your monitor, modules, Multi-Measurement Module, MMS extensions, Flexible Module Rack, remote control, cables and accessories free of dust and dirt.

After cleaning and disinfection, check the equipment carefully. Do not use if you see signs of deterioration or damage. If you need to return any equipment to Philips, decontaminate it first.

Observe the following general precautions:

- Always dilute cleaning agents according to the manufacturer's instructions or use lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment or any accessories in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Never use bleach except in an approved product listed in this chapter.

WARNING

If you spill liquid on the equipment, battery or accessories, or they are accidentally immersed in liquid, contact your service personnel or Philips service engineer. Do not operate the equipment before it has been tested and approved for further use.

The general care and cleaning information given here meets the requirements of Covidien llc for their BIS measurement devices.

Cleaning the Equipment

Clean with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap, a diluted non-caustic detergent, tenside, ammonia- or alcohol-based cleaning agent. Do not use strong solvents such as acetone or trichloroethylene.

Take extra care when cleaning the screen of the monitor because it is more sensitive to rough cleaning methods than the housing. Do not permit any liquid to enter the monitor case and avoid pouring it on the monitor while cleaning. Do not allow water or cleaning solution to enter the measurement connectors. Wipe around, not over, connector sockets.

CAUTION

To clean the touch-enabled display, disable the touch operation by switching off the monitor during the cleaning procedure, or by selecting and holding main screen until the padlock symbol appears on it, indicating that touch operation is disabled. Select and hold again to re-enable touch operation.

Before cleaning a mouse, keyboard or other connected third-party device, disconnect it from the monitor.

Disinfecting the Equipment

CAUTION

Solutions: Do not mix disinfecting solutions (such as bleach and ammonia) as hazardous gases may result.

Clean equipment before disinfecting. Recommended types of disinfecting agents are:

Product Name	Product Type	Ingredients
Isopropanol	liquid	Isopropanol 80%
Bacillol® AF	liquid, spray	100 g concentrate contains: Propan-1-ol 45.0 g; Propan-2-ol 25.0 g; Ethanol 4.7 g
Bacillol® 25	liquid	Ethanol 100 mg/g Propan-2-ol (= 2-Propanol) 90 mg/g; Propan-1-ol (= 1-Propanol) 60 mg/g
Meliseptol®	spray	50% 1-Propanol
Accel TB RTU	liquid	0.5% accelerated hydrogen peroxide
Oxivir® Tb Cleaner Disinfectant	spray	0.5% accelerated hydrogen peroxide
Oxivir® Tb Wipes	wipes	0.5% accelerated hydrogen peroxide

Product Name	Product Type	Ingredients
Carpe Diem™/MC Tb Ready-to-Use General Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer	spray	0.5% accelerated hydrogen peroxide
Carpe Diem™/MC Tb Wipes	wipes	0.5% accelerated hydrogen peroxide
Super Sani-Cloth Germicidal Disposable Wipes	wipes	isopropanol 55% quaternary ammonium chlorides 0.5%
SANI-CLOTH® PLUS Germicidal Disposable Wipes	wipes	isopropanol 15% quaternary ammonium chlorides 0.25%
SANI-CLOTH® HB Germicidal Disposable Wipes	wipes	isopropanol < 0.15% quaternary ammonium chlorides 0.14%
Clorox® Hydrogen Peroxide Disinfecting Wipes ¹	wipes	1 - 5% hydrogen peroxide 1 - 5% benzyl alcohol

¹ Do not use Clorox® Hydrogen Peroxide Disinfecting Wipes for snap fits (for example the battery cover) or hinges. Remove all residues with water after the residence time. For repeated or prolonged use, wear rubber or nitrile gloves to protect your hands.

Sterilizing the Equipment

Sterilization is not allowed for this monitor, related products, accessories or supplies unless otherwise indicated in the Instructions for Use that accompany the accessories and supplies.

Cleaning, Sterilizing and Disinfecting Monitoring Accessories

To clean, disinfect and sterilize reusable transducers, sensors, cables, leads, and so forth, refer to the instructions delivered with the accessory. If no instructions are delivered with the accessory, the instructions given in this chapter for cleaning, disinfecting and sterilizing the monitor are applicable.

Cleaning the SO2 Optical Module

The outside of the optical module can be cleaned as described under “Cleaning the Equipment” on page 454. The compartment with the fiber-optic connection can only be cleaned with a dry cloth. Do not introduce any moisture into this compartment.

Cleaning and Disinfecting the Tympanic Temperature Accessories

Probe and Thermometer Body

- 1 Wipe the thermometer body clean with a damp cloth. The water temperature should not exceed 55°C (130°F). Do not soak, rinse, or submerge the thermometer under water. You may add a mild detergent to the water.
- 2 Clean the probe tip with a lint-free swab. If the probe tip is soiled, clean it with a dampened swab.
- 3 After you have removed all foreign matter, clean the thermometer lens at the end of the probe tip with a lint-free swab or lens wipe. The thermometer lens must be free from fingerprints and/or smudges for proper operation.
- 4 Thoroughly dry all surfaces.

After cleaning, wait 30 minutes for the thermometer to dry completely before using it for measurements.

CAUTION

Do not use cleaners and disinfectants such as Spray-Nine™, PhisoHex™, Hibiclens™, or Vesta-Syde™ as they may result in damage to the thermometer case.

Occasional use of a 10:1 water and hypochlorite mixture or a damp isopropyl alcohol wipe or Cidex™ or ManuKlenz™ or VIROX™ or CaviWipes™ cleansing agents is acceptable, however, prolonged or repeated use of these chemicals may result in damage to the thermometer case and display area.

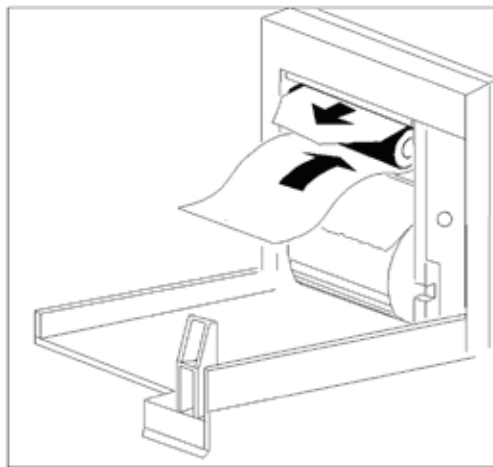
Use of a cloth or sponge is recommended for cleaning. Never use an abrasive pad or an abrasive cleaner on the thermometer.

The thermometer is non-sterile. Do not use ethylene oxide gas, heat, autoclave, or any other harsh method to sterilize this thermometer.

Cleaning the Recorder Printhead (M1116B only)

If you run recordings at low speed (1 or 2cm/min) for extended periods, deposits of paper debris may collect on the print head, making recordings unevenly fainter in horizontal stripes.

- 1 Remove the recorder.
- 2 Open the recorder door and un-thread the paper from behind the rubber roller.
- 3 Tear off or roll up the excess paper into the roll chamber to get it out of your way.
- 4 Thread the cloth cleaning strip instead of paper around the rubber roller until approximately two inches of the strip comes out from the top of the roller.



- 5 Close the recorder door, aligning both ends of the strip over the top of the door.
- 6 Holding the top end of the cleaning strip between your thumb and forefinger, pull the strip through and out of the recorder.
- 7 Open the door and ensure that the paper cavity is dust-free. Re-thread the paper and replace the recorder.

Cleaning Batteries and the Battery Compartment

**MX400/450/
500/550** Wipe with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap. Do not use strong solvents. Do not soak the battery.

IntelliVue MMS X2 and IntelliVue MP2

Use only the Philips-approved substances and methods listed in this chapter to clean or disinfect your equipment. Warranty does not cover damage caused by using unapproved substances or methods.

Philips makes no claims regarding the efficacy of the listed chemicals or methods as a means for controlling infection. Consult your hospital's Infection Control Officer or Epidemiologist. For comprehensive details on cleaning agents and their efficacy, refer to "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public-Safety Workers" issued by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia, February 1989. See also any local policies that apply within your hospital and country.

General Points

Keep your monitor, cables and accessories free of dust and dirt.

After cleaning and disinfection, check the equipment carefully. Do not use if you see signs of deterioration or damage. If you need to return any equipment to Philips, decontaminate it first.

Observe the following general precautions:

- Always dilute cleaning agents according to the manufacturer's instructions or use lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment or any accessories in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Never use bleach except in an approved product listed in this chapter.

WARNING

If you spill liquid on the equipment, battery or accessories, or they are accidentally immersed in liquid, contact your service personnel or Philips service engineer. Do not operate the equipment before it has been tested and approved for further use.

Cleaning the Monitor

Clean with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap, a diluted non-caustic detergent, tenside, ammonia- or alcohol-based cleaning agent. Do not use strong solvents such as acetone or trichloroethylene.

Take extra care when cleaning the screen of the monitor because it is more sensitive to rough cleaning methods than the housing. Do not permit any liquid to enter the monitor case and avoid pouring it on the monitor while cleaning. Do not allow water or cleaning solution to enter the measurement connectors. Wipe around, not over, connector sockets.

CAUTION

To clean the touch-enabled display, disable the touch operation by switching off the monitor during the cleaning procedure, or by pressing and holding the Main Screen key for two seconds. Press the Main Screen key again to re-enable touch operation.

Recommended cleaning agents are:

Tensides (dishwasher detergents)	Edisonite Schnellreiniger [®] , Alconox [®]
Ammonias	Dilution of Ammonia <3%, Window cleaner
Alcohol	Ethanol 70%, Isopropanol 70%, Window cleaner

Disinfecting the Equipment

CAUTION

Solutions: Do not mix disinfecting solutions (such as bleach and ammonia) as hazardous gases may result.

Clean equipment before disinfecting. Recommended types of disinfecting agents are:

Product Name	Product Type	Ingredients
Isopropanol	liquid	Isopropanol 80%
Bacillol [®] AF	liquid, spray	100 g concentrate contains: Propan-1-ol 45.0 g; Propan-2-ol 25.0 g; Ethanol 4.7 g
Bacillol [®] 25	liquid	Ethanol 100 mg/g Propan-2-ol (= 2-Propanol) 90 mg/g; Propan-1-ol (= 1-Propanol) 60 mg/g
Meliseptol [®]	spray	50% 1-Propanol
Accel TB RTU	liquid	0.5% accelerated hydrogen peroxide
Oxivir [®] Tb Cleaner Disinfectant	spray	0.5% accelerated hydrogen peroxide
Oxivir [®] Tb Wipes	wipes	0.5% accelerated hydrogen peroxide

Product Name	Product Type	Ingredients
Carpe Diem™/MC Tb Ready-to-Use General Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer	spray	0.5% accelerated hydrogen peroxide
Carpe Diem™/MC Tb Wipes	wipes	0.5% accelerated hydrogen peroxide
Super Sani-Cloth Germicidal Disposable Wipes	wipes	isopropanol 55% quatarnary ammonium chlorides 0.5%
SANI-CLOTH® PLUS Germicidal Disposable Wipes	wipes	isopropanol 15% quatarnary ammonium chlorides 0.25%
SANI-CLOTH® HB Germicidal Disposable Wipes	wipes	isopropanol < 0.15% quatarnary ammonium chlorides 0.14%
Clorox® Hydrogen Peroxide Disinfecting Wipes ¹	wipes	1 - 5% hydrogen peroxide 1 - 5% benzyl alcohol

¹ Do not use Clorox® Hydrogen Peroxide Disinfecting Wipes for snap fits (for example the battery cover) or hinges. Remove all residues with water after the residence time. For repeated or prolonged use, wear rubber or nitrile gloves to protect your hands.

Sterilizing the Equipment

Sterilization is not allowed for this monitor, related products, accessories or supplies unless otherwise indicated in the Instructions for Use that accompany the accessories and supplies.

Cleaning, Sterilizing and Disinfecting Monitoring Accessories

To clean, disinfect and sterilize reusable transducers, sensors, cables, leads, and so forth, refer to the instructions delivered with the accessory. If no instructions are delivered with the accessory, the instructions given in this chapter for cleaning, disinfecting and sterilizing the monitor are applicable.

Cleaning Batteries and the Battery Compartment

Wipe with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap. Do not use strong solvents. Do not soak the battery.

IntelliVue X3 and IntelliVue MX100

Use only the Philips-approved substances and methods listed in this chapter to clean or disinfect your equipment. Warranty does not cover damage caused by using unapproved substances or methods.

Philips makes no claims regarding the efficacy of the listed chemicals or methods as a means for controlling infection. Consult your hospital's Infection Control Officer or Epidemiologist. For comprehensive details on cleaning agents and their efficacy, refer to "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public-Safety Workers" issued by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia, February 1989. See also any local policies that apply within your hospital and country.

General Points

Keep your monitor, cables and accessories free of dust and dirt.

After cleaning and disinfection, check the equipment carefully. Do not use if you see signs of deterioration or damage. If you need to return any equipment to Philips, decontaminate it first.

Observe the following general precautions:

- Always dilute cleaning agents according to the manufacturer's instructions or use lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment or any accessories in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Never use bleach except in an approved product listed in this chapter.
- When cleaning cables, do not allow liquid to enter the connector or to collect around connector pins.
- Avoid cleaning or disinfecting while the equipment is in operation or in direct sunlight.
- Ensure that all parts of the equipment dry completely after cleaning and disinfection.

WARNING

If you spill liquid on the equipment, battery or accessories, or they are accidentally immersed in liquid, contact your service personnel or Philips service engineer. Do not operate the equipment before it has been tested and approved for further use.

Cleaning the Monitor

Clean with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap, or an alcohol based cleaning agent such as ethanol 70%. Do not use strong solvents such as acetone or trichloroethylene.

Take extra care when cleaning the screen of the monitor because it is more sensitive to rough cleaning methods than the housing.

Do not permit any liquid to enter the monitor case and avoid pouring it on the monitor while cleaning. Do not allow water or cleaning solution to enter the measurement connectors. Wipe around, not over, connector sockets.

CAUTION

To clean the touch-enabled display, disable the touch operation by switching off the monitor during the cleaning procedure, or by touching and holding the screen key. Touch and hold the screen key again to re-enable touch operation.

Disinfecting the Equipment**CAUTION**

Solutions: Do not mix disinfecting solutions (such as bleach and ammonia) as hazardous gases may result.

Clean equipment before disinfecting.

Depending on the form of the disinfectant, use a wipe, or spray-and-wipe technique for the disinfection of equipment surfaces.

The following disinfectants have been tested and approved for regular use on all parts of the monitor exterior:

Product Name, Dilution (v/v) ¹	Product Type ²	Manufacturer
Isopropanol, 80%	liquid	-
Sodium Hypochlorite, bleach, 2% ³	liquid	-
Hydrogen Peroxide, 3%	liquid	-
Bacillol® AF	liquid, spray	BODE Chemie GmbH
Dismozon® plus, 0.4%	liquid	BODE Chemie GmbH
Meliseptol®	liquid, spray	B. Braun Melsungen AG
Incidin® Foam	liquid	Ecolab Inc.
Incidin® Plus ³ , 0.5%	liquid	Ecolab Inc.
Oxivir® Tb Disinfectant Cleaner	liquid, spray	Diversey Inc.
Super Sani-Cloth® Germicidal Disposable Wipes	wipes	PDI Inc.
Sani-Cloth® Bleach ³ Germicidal Disposable Wipes	wipes	PDI Inc.
Sani-Cloth® AF3 ³ Germicidal Disposable Wipes	wipes	PDI Inc.

Product Name	Product Type	Ingredients
Sani-Cloth® AF3 ³ Germicidal Disposable Wipes	wipes	PDI Inc.
Mikrozid® Sensitive Wipes	wipes	Schülke & Mayr GmbH
Mikrozid® PAA Wipes	wipes	Schülke & Mayr GmbH
Descogen® Liquid rfu	liquid	Antiseptica Dr. Hans-Joachim Molitor GmbH
Lysoformin, 6%	liquid	Lysoform Dr. Hans Rosemann GmbH
Descosept PUR	liquid	Dr. Schumacher GmbH
Virex® Tb Disinfectant Cleaner ^{3, 4}	liquid, spray	Diversey Inc.

¹ Where no specific information is given on the dilution, refer to the manufacturer's instructions.

² If a product is offered as wipes and liquid, with the same formula and concentration, both products are approved. Testing was performed on the product type shown here.

³ Do not use these disinfectants on the Bedhanger Mount or the Rotatable Quick Claw Mount.

⁴ Regular use of this disinfectant increases material stress and may lead to a slightly reduced lifetime of the monitor housing.

Sterilizing the Equipment

Sterilization is not allowed for this monitor, related products, accessories or supplies unless otherwise indicated in the Instructions for Use that accompany the accessories and supplies.

Cleaning, Sterilizing and Disinfecting Monitoring Accessories

To clean, disinfect and sterilize reusable transducers, sensors, cables, leads, and so forth, refer to the instructions delivered with the accessory. If no instructions are delivered with the accessory, the instructions given in this chapter for cleaning, disinfecting and sterilizing the monitor are applicable.

Cleaning Batteries and the Monitor Battery Compartment

Wipe with a lint-free cloth, moistened with warm water (40°C/104°F maximum) and soap. Do not use strong solvents. Do not soak the battery.

SureSigns VS2

To clean or disinfect your SureSigns VS2 monitor, use only the approved cleaning agents listed in this chapter.

WARNING

Do not use unapproved cleaning or disinfecting agents. Even small quantities of some cleaning agents will damage the monitor.

Do not use abrasive cleaners or strong solvents such as acetone or acetone-based compounds. The warranty does not cover damage caused by using unapproved substances.

General Points

Keep the monitor, cables, and accessories free of dust and dirt. After cleaning and disinfecting, check the equipment carefully. Do not use the equipment if you see signs of deterioration or damage.

If you need to return any equipment to Philips, clean and disinfect it first.

Follow these general precautions:

- Always dilute cleaning agents according to the manufacturer's instructions or use the lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Do not autoclave, steam sterilize, or ultrasonically clean the monitor or cables.
- Do not use bleach on electrical contacts or connectors.
- Do not use alcohol on the patient cables. Alcohol can cause the plastic to become brittle and fail prematurely.

CAUTION

If you spill liquid on the exterior of the monitor or external power supply, use a clean cloth to dry them. If you believe the liquid may have gotten inside the monitor or external power supply, contact your biomedical engineer, who can verify the performance and safety of the equipment.

Cleaning and Disinfecting the Monitor

To clean the monitor:

Step	
1	Dampen a soft cloth with mild soap and water.
2	Wring any excess moisture from the cloth and gently clean the monitor.

To disinfect the monitor:

Step	
1	Dampen a soft cloth with any one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Sodium hypochlorite (chlorine bleach, 5% solution in water) • Quaternary ammonium chloride compounds (<0.25%) • Hydrogen peroxide (<5%) • Peracetic acid (<1%) with Hydrogen peroxide (<1%) • Sodium dichloroisocyanurate solid (48% before dilution) • Ethylene glycol monobutyl ether (2.5%) with isopropanol (14%)
2	Wring any excess moisture from the cloth and wipe the monitor to disinfect it.

Cleaning and Disinfecting the Cables and External Power Supply

CAUTION

Do not use alcohol to clean the cables. Alcohol can cause the cables to become brittle and fail prematurely.

To clean the cables and external power supply:

Step	
1	Dampen a soft cloth with alcohol-free hand soap.
2	Wring any excess moisture from the cloth and gently clean the cables and external power supply.
3	Clean the areas again with a damp cloth moistened with water only.

To disinfect the cables and external power supply:

Step	
1	Dampen a soft cloth with sodium hypochlorite (chlorine bleach), 3% solution in water. Caution: Sodium hypochlorite may discolor the cable.
2	Wring any excess moisture from the cloth and gently clean the cables.
3	Clean the areas again with a damp cloth moistened with water only.

SureSigns VS3

To clean or disinfect your SureSigns VS3 monitor, use only the approved cleaning agents listed in this chapter.

For information on how to clean accessories, see the Instructions for Use provided with the accessory.

WARNING

Do not use unapproved cleaning or disinfecting agents. Even small quantities of some cleaning agents will damage the monitor.

Do not use abrasive cleaners or strong solvents such as acetone or acetone-based compounds. The warranty does not cover damage caused by using unapproved substances.

General Points

Keep the monitor, cables, and accessories free of dust and dirt. After cleaning and disinfecting, check the equipment carefully. Do not use the equipment if you see signs of deterioration or damage.

If you need to return any equipment to Philips, clean and disinfect it first.

Follow these general precautions:

- Always dilute cleaning agents according to the manufacturer's instructions or use the lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Do not autoclave, steam sterilize, or ultrasonically clean the monitor or cables.
- Do not use bleach on electrical contacts or connectors.
- Do not use alcohol on the patient cables. Alcohol can cause the plastic to become brittle and fail prematurely.

CAUTION

Liquid spillage causes electrical circuit failure. If you spill liquid on the exterior of the monitor, use a clean cloth to dry the monitor. If you believe the liquid may have entered the monitor, contact your biomedical engineer, who can verify the performance and safety of the equipment.

Cleaning and Disinfecting the Monitor

CAUTION

When cleaning the monitor, follow these precautions:

- Lock the display to avoid any unintended action.
- Do not immerse, autoclave, steam sterilize or ultrasonically clean the monitor.
- Do not use abrasive cleaners, or strong solvents such as acetone or acetone-based compounds.
- Do not clean electrical contacts or connectors with bleach.
- Use a soft cloth to clean the display window to prevent scratching.
The tympanic temperature is rated IPX0 and caution must be used to avoid liquid getting into the seams of the thermometer.
When cleaning a VS3 monitor made of cyclopol¹, with the monitor at room temperature, the following may be used:
- Isopropyl alcohol (70% solution in water)
- Mild soap and water
- Sodium hypochlorite (chlorine bleach) 5% solution in water

To clean the monitor:

Step	
1	Dampen a soft cloth with mild soap and water.
2	Wring any excess moisture from the cloth and gently clean the monitor.

¹ Conversion to Valox plastic completed with EC 2970-2009-07-00932 effective 29-Sep-2009.

To disinfect the monitor:

Step	
1	Dampen a soft cloth with any one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Sodium hypochlorite (chlorine bleach, 5% solution in water) • Quaternary ammonium chloride compounds (<0.25%) • Hydrogen peroxide (<5%) • Peracetic acid (<1%) with Hydrogen peroxide (<1%) • Sodium dichloroisocyanurate solid (48% before dilution) • Ethylene glycol monobutyl ether (2.5%) with isopropanol (14%)
2	Wring any excess moisture from the cloth and wipe the monitor to disinfect it.

Cleaning and Disinfecting the Cables

CAUTION

Do not use alcohol to clean the cables. Alcohol can cause the cables to become brittle and fail prematurely.

To clean the cables:

Step	
1	Dampen a soft cloth with alcohol-free hand soap.
2	Wring any excess moisture from the cloth and gently clean the cables.
3	Clean the areas again with a damp cloth moistened with water only.

To disinfect the cables:

Step	
1	Dampen a soft cloth with sodium hypochlorite (chlorine bleach), 3% solution in water. Caution: Sodium hypochlorite may discolor the cable.
2	Wring any excess moisture from the cloth and gently clean the cables.
3	Clean the areas again with a damp cloth moistened with water only.

Cleaning and Disinfecting the Predictive Temperature Module

CAUTION

When cleaning the temperature module, follow these general precautions:

- Do not use steam, heat, or gas sterilization on the probe or probe well.
- Do not autoclave the probe or probe well.

Cleaning and Disinfecting the Probe and Cord

To clean the probe and cord:

- Dampen a soft cloth with mild soap and warm water and wipe the probe and cord.
To disinfect the probe and cord:
- Dampen a soft cloth with any one of the following solutions and wipe the probe and cord:
 - Isopropyl alcohol (70% solution in water)
 - Sodium hypochlorite (chlorine bleach, 10% solution in water)
 - A nonstaining disinfectant

Cleaning and Disinfecting the Probe Well

To clean and disinfect the probe well:

Step	
1	Disconnect the probe and remove it from the well.
2	Remove the well from the monitor.
3	Dampen a soft cloth with mild soap and warm water and wipe the inner and outer surfaces.
4	If needed, disinfect the well with any one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Sodium hypochlorite (chlorine bleach, 10% solution in water) • A nonstaining disinfectant
5	Thoroughly dry all of the surfaces before replacing the well in the monitor.

Cleaning and Disinfecting the Tympanic Temperature Module

CAUTION

When cleaning and disinfecting the tympanic temperature module, follow these general precautions:

- Do not soak, rinse, spray or submerge the thermometer.
- Do not use a cleaning agent that contains chlorine.
- Never spray the thermometer directly with cleaning chemicals. Spray a cloth or sponge lightly dampening it with the cleaning agent and then apply it to the thermometer.
- The thermometer is a non-sterile device; do not use ethylene oxide gas, heat, or any other harsh method to sterilize the thermometer.
- Do not immerse or autoclave the thermometer.
- Do not use cleaners such as Spray-Nine™, PhisoHex™, Hibiclens™, Vesta-Syde™, Anios DDSH™, Sufanios Citroen™, Perasafe powder™, Sekusept Pulver, Classic™, Sekulyse™, Diesin HG™, Incides N™, or SurfaSafe™ disinfectants because they may result in damage to the thermometer case or electronics. Prolonged or repeated use of these chemicals may result in damage to the thermometer case, display, or electronics.
- When cleaning the thermometer with a wipe, make sure the wipe has all excess fluid squeezed from it. If the wipe is too wet, the chemical may penetrate the handset and affect the thermometer's functionality.
- Never use an abrasive pad or an abrasive cleaner.

To clean and disinfect the thermometer:

Step	
1	Install a probe cover on the thermometer when cleaning to prevent harsh chemicals from damaging the tip and probe lens.
2	Dampen a clean cloth or sponge with mild detergent and water. Water temperature should not exceed 55°C (130°F). You can also clean the thermometer with isopropyl alcohol (70% solution in water).
3	If needed, disinfect the thermometer with a mild detergent or detergent wipe with any one of the following: <ul style="list-style-type: none"> • Damp isopropyl alcohol wipes • Cidex™ • Manuklenz™ • VIROX™ • CaviWipes™
4	After cleaning, allow the thermometer to air-dry for 30 minutes before use.

To clean and disinfect the probe tip:

Step	
1	Clean the probe tip at room temperature using one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol wipe such as Webcol™ or Curity™ • Isopropyl alcohol (70% solution in water)
2	Remove all foreign matter from the probe tip.
3	Dry the window at the end of the probe tip using a lint-free swab or lens wipe. Note — <i>The thermometer lens must be free from fingerprints and smudges for proper operation.</i>
4	After cleaning the tip, allow the thermometer to air-dry for 30 minutes before use.

SureSigns VS4

To clean or disinfect your SureSigns VS4 monitor, use only the approved cleaning agents listed in this chapter.

For information on how to clean accessories, see the instructions for use provided with the accessory.

WARNING

Do not use unapproved cleaning or disinfecting agents. Even small quantities of some cleaning agents will damage the monitor.

Do not use abrasive cleaners or strong solvents such as acetone or acetone-based compounds. The warranty does not cover damage caused by using unapproved substances.

The ingress of particulate matter (solids) causes electrical circuit failure or failure of applied parts. Periodically inspect for and clean dust from monitor vents and applied parts.

General Points

Sterile accessories are marked with “Sterile” and “Do not use if package is damaged” symbols.

Always inspect the monitors and accessories for damage and deterioration before each use. It is the responsibility of the hospital to determine the appropriate cleaning protocol for each care unit.

Keep the monitor, cables, and accessories free of dust and dirt. After cleaning and disinfecting, check the equipment carefully. Do not use the equipment if you see signs of deterioration or damage.

If you need to return any equipment to Philips, clean and disinfect it first.

Follow these general precautions:

- Always dilute cleaning agents according to the manufacturer’s instructions or use the lowest possible concentration.
- Do not allow liquid to enter the case.
- Do not immerse any part of the equipment in liquid.
- Do not pour liquid onto the system.
- Never use abrasive material (such as steel wool or silver polish).
- Do not autoclave, steam sterilize or ultrasonically clean the monitor or cables.
- Do not use bleach on electrical contacts or connectors.
- Do not use alcohol on the patient cables. Alcohol can cause the plastic to become brittle and fail prematurely.

CAUTION

If you spill liquid on the exterior of the monitor, use a clean cloth to dry the monitor. If you believe the liquid may have entered the monitor, contact your biomedical engineer, who can verify the performance and safety of the equipment.

Cleaning and Disinfecting the Monitor

CAUTION

When cleaning the monitor, follow these precautions:

- Lock the display to avoid any unintended action.
- Do not immerse, autoclave, steam sterilize or ultrasonically clean the monitor.
- Do not clean electrical contacts or connectors with bleach.
- Use a soft cloth to clean the display window to prevent scratching.
- Do not allow liquid to get into the thermometer seams.

To clean the monitor:

Step	
1	Dampen a soft cloth with mild soap and water.
2	Wring any excess moisture from the cloth and gently clean the monitor.

To disinfect the monitor:

Step	
1	Dampen a soft cloth with any one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Sodium hypochlorite (chlorine bleach, 10% solution in water) • Quaternary ammonium chloride compounds (<1% by volume) • Hydrogen peroxide (<5% by volume) with phosphoric acid (<5% by volume) • Peracetic acid (<1%) with Hydrogen peroxide (<1% by volume) • Sodium dichloroisocyanurate solid (48% by weight before dilution) • Ethylene glycol monobutyl ether (1-5%) with isopropanol (17%) • n-alkyl dimethyl benzyl ammonium chloride (8.1% by weight before dilution) with didecyl dimethyl ammonium chloride (8.7% by weight before dilution) • Diethylene glycol butyl ether (5-10% by weight) • Sodium dodecylbenzenesulfonate solid (20% before dilution) • Super Sani-Cloth • Sani Cloth plus • Sani Cloth Bleach • Bode Bacillol 30 Tissue
2	Wring any excess moisture from the cloth and wipe the monitor to disinfect it.

Cleaning and Disinfecting the Cables

CAUTION

Do not use alcohol to clean the cables. Alcohol can cause the cables to become brittle and fail prematurely.

To clean the cables:

Step	
1	Dampen a soft cloth with alcohol-free hand soap.
2	Wring any excess moisture from the cloth and gently clean the cables.
3	Clean the areas again with a damp cloth moistened with water only.

To disinfect the cables:

Step	
1	Dampen a soft cloth with sodium hypochlorite (chlorine bleach), 3% solution in water. Caution: Sodium hypochlorite may discolor the cable.
2	Wring any excess moisture from the cloth and gently clean the cables.
3	Clean the areas again with a damp cloth moistened with water only.

Cleaning and Disinfecting the Predictive Temperature Module

CAUTION

When cleaning the temperature module, follow these general precautions:

- Do not use steam, heat or gas sterilization on the probe or probe well.
- Do not autoclave the probe or probe well.

Cleaning and Disinfecting the Probe and Cord

To clean the probe and cord:

- Dampen a soft cloth with mild soap and warm water and wipe the probe and cord.
To disinfect the probe and cord:
- Dampen a soft cloth with any one of the following solutions and wipe the probe and cord:
 - Isopropyl alcohol (70% solution in water)
 - Sodium hypochlorite (chlorine bleach, 10% solution in water)
 - A nonstaining disinfectant

Cleaning and Disinfecting the Probe Well

To clean the probe well:

Step	
1	Disconnect the probe and remove it from the well.
2	Remove the well from the monitor.
3	Dampen a soft cloth with mild soap and warm water and wipe the inner and outer surfaces.
4	Thoroughly dry all of the surfaces before replacing the well in the monitor.

To disinfect the probe well:

Step	
1	Disconnect the probe and remove it from the well.
2	Remove the well from the monitor.
3	Dampen a soft cloth with any of the following solutions and wipe the inner and outer surfaces: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Sodium hypochlorite (chlorine bleach, 10% solution in water) • A nonstaining disinfectant
4	Thoroughly dry all of the surfaces before replacing the probe well in the monitor.

Cleaning and Disinfecting the Tympanic Temperature Module

CAUTION

When cleaning and disinfecting the tympanic temperature module, follow these general precautions:

- Do not soak, rinse, spray or submerge the thermometer.
- Do not use a cleaning agent that contains chlorine. If necessary, use a 10:1 water hypochlorite mixture.
- Never spray the thermometer directly with cleaning chemicals. Spray a cloth or sponge, lightly dampening it with the cleaning agent, and then apply it to the thermometer.
- The thermometer is a non-sterile device; do not use ethylene oxide gas, heat, or any other harsh method to sterilize the thermometer.
- Do not immerse or autoclave the thermometer.
- Do not use cleaners such as Spray-Nine™, PhisoHex™, Hibiclens™, Vesta-Syde™, Anios DDSH™, Sufanios Citroen™, Perasafe powder™, Sekusept Pulver, Classic™, Sekulyse™, Diesin HG™, Incides N™, or SurfaSafe™ disinfectants because they may result in damage to the thermometer case or electronics.
- When cleaning the thermometer with a wipe, make sure that you squeeze out all excess liquid. If the wipe is too wet, the chemical may penetrate the handset and affect the thermometer's functionality.
- Never use an abrasive pad or an abrasive cleaner.

To clean the tympanic thermometer:

Step	
1	Install a probe cover on the thermometer to prevent damage to the tip and probe lens.
2	Dampen a clean cloth or sponge with mild detergent and water and wipe the thermometer surface. The water temperature should not exceed 55°C (130°F).
3	After cleaning, allow the thermometer to air-dry for 30 minutes before use.

To disinfect the tympanic thermometer:

Step	
1	Install a probe cover on the thermometer to prevent damage to the tip and probe lens.
2	Wipe the thermometer surface with any of the following: <ul style="list-style-type: none"> • Isopropyl alcohol (70% solution in water) • Isopropyl alcohol wipes • Cidex™ • Manu-Klenz™ • VIROX™ • CaviWipes™
3	After disinfecting, allow the thermometer to air-dry for 30 minutes before use.

To clean and disinfect the probe tip:

Step	
1	Clean the probe tip at room temperature using one of the following: <ul style="list-style-type: none"> • Isopropyl alcohol wipe such as Webcol™ or Curity™ • Isopropyl alcohol (70% solution in water)
2	Remove all foreign matter from the probe tip.
3	Dry the window at the end of the probe tip using a lint-free swab or lens wipe. Note — <i>The thermometer lens must be free from fingerprints and smudges for proper operation.</i>
4	After cleaning the tip, allow the thermometer to air-dry for 30 minutes before use.

Cleaning the Temporal Thermometer

CAUTION

When cleaning the temporal temperature module, follow these general precautions:

- Do not use strong solvents, such as acetone.
- Avoid pouring any liquid on the thermometer while cleaning.

To clean the temporal thermometer base:

Step	
1	Dampen a lint-free cloth with any one of the following solutions and wipe the thermometer base: <ul style="list-style-type: none"> • Warm water and soap. The water temperature should not exceed 40°C (104°F). • A diluted non-caustic detergent. • An alcohol-based cleaning agent.
2	Dry the thermometer base with a clean, lint-free cloth.

Cleaning the Sensor Lens

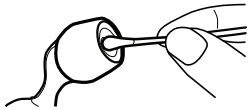
CAUTION

When cleaning the lens, follow these general precautions:

- Do not use bleach or other cleaning solutions on the sensor lens.
- To avoid damaging the lens, use only light force for cleaning.

The sensor lens is made of a mirror-like, silicon infrared-transmitting material. Dirt, greasy film, or moisture on the lens interferes with transmitting infrared heat and affects the accuracy of the instrument.

To clean the sensor lens:

Step	
1	Dip a cotton swab in alcohol and gently wipe the sensor lens. 
2	Dip another swab in water and remove any residual film left by the alcohol.

Preventive Maintenance

Suggested Testing	Frequency
NBP calibration	Once every two years.
Battery reconditioning	When the Max Error is 10% or greater.
Tympanic temperature calibration ¹	Once a year.
Temporal temperature calibration ²	Once a year.
CO ₂ calibration	<ul style="list-style-type: none"> • First calibration at 1,200 hours of use or after one year, whichever comes sooner. • After the first calibration, once a year or after 4,000 hours, whichever comes sooner. • After any repairs or the replacement of any parts. Replace the entire CO2 module after 20,000 hours of use.
Performance <ul style="list-style-type: none"> • Predictive temperature accuracy • NBP accuracy test • S_pO₂ 	Once every two years, or if you suspect the measurement is incorrect.
<ul style="list-style-type: none"> • Nurse call relay³ 	Once every two years.
Safety <ul style="list-style-type: none"> • Enclosure leakage current • General Integrity • Patient leakage current 	Once a year or after repairs where the monitor has been opened (front and back separated) or the monitor has been damaged by impact.

¹ Requires a Covidien calibration module. For more information, see the SureSigns Vital Signs Monitor Service Guide, page 3-22.

² Requires an Exergen calibration module.

³ When used as part of facility protocols.

