

EFP250
Endo-Flush

Endoscope Flushing Pump

Instruction Manual



Safety in Practice



Endo-Flush # EFP250 Instruction Manual

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1 Introduction

Labels, Symbols & Signal Words

The meanings of the labels, symbols and signal words that appear on the packaging, manual and/or instrument are as follows:

The following signal words are used throughout this manual:



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.



Protective Grounding

NOTE

Indicates additional helpful information.

Environmental Conditions

- For indoor use only.
- Temperature range: 5°C/41°F to 40°C/104°F
- Main supply voltage fluctuations not to exceed +/-10% of the nominal voltage.

Supply Ratings

Voltage: AC 110-120V 0.7A 50/60 Hz

Fuse: 1 each Type FSF 5 x 20 mm 2 amp 250VAC externally mounted.

The EFP250 is tested and listed to the following standards:

The EFP250 was tested by Met Laboratories, a Nationally Recognized Testing Laboratory (NRTL), and was certified to UL 61010-1 and CSA C22.2 No 61010-1 safety standards. File # E112640

2 Important Information

Please Read Before Use

Product Overview

The Endoscope Flushing Pump (EFP250) is a compact unit that contains a two-pump system. It is used to replace the manually operated syringe for flushing detergent, rinse water and air through endoscope channels during the manual cleaning phase of endoscope reprocessing. The primary pump flushes the Suction/Instrument and Air/Water channels. The secondary pump is used to flush the Auxiliary Water or Elevator-Wire channels.

Intended Use

The EFP250 is designed to flush the internal channels of specific Olympus flexible endoscopes listed on page 21 in accordance with Olympus reprocessing instructions.

NOTE: **The EFP250 is a substitute for manual flushing with a syringe prior to the endoscope being placed in an automated reprocessor (AER) for disinfection.**

Follow the endoscope manufacturer's instructions for manual cleaning. When endoscope manufacturer's instructions specify to flush channels with detergent/water/air using a syringe, follow the EFP250 instructions for automated detergent/water/air flushing.

Instruction Manual

This instruction manual contains essential information on using this system safely and effectively. Before use, thoroughly review this manual and the manuals of all equipment that will be used during the procedure, and use all equipment as instructed.

Keep this and all related instruction manuals in a safe, accessible location.

If you have any questions or comments regarding any information in this instruction manual, please contact PCI medical inc.

Repair and Modification

This system contains no user-serviceable parts. Do not modify or attempt to repair it. Contact PCI medical inc for all service-related matters. Equipment damage can result from user attempts to repair or modify system components.

Before attempting to perform routine maintenance on the system, thoroughly review and understand this manual for complete familiarization with the system and its operation.

In the event of technical difficulty, call PCI at 1-800-862-3394.

- PCI will attempt to resolve the issue over the phone. If the issue cannot be resolved over the phone, PCI medical can ship a replacement unit.
- Upon receipt of the replacement unit, place the defective unit in the box that contains the replacement unit and affix the return shipment label that will be included in the box.
- Retain the hose assemblies that will not be replaced.

Safety Precautions



WARNING

The EFP250 must be plugged into a GFCI outlet.



WARNING

The EFP250 is an electrical device, do not immerse in water. Follow the installation instructions to secure the device in a safe location.



WARNING

The EFP250 is not to be used with flammable liquids. Do not flush with alcohol.



CAUTION

Disconnect power before moving the EFP250.



CAUTION

The EFP250 is not intended for use as part of the endoscope high-level disinfection procedure.



CAUTION

Always use fresh detergent and clean water in the two-liter container supplied with unit.



CAUTION

Always wear Personal Protective Equipment, including eyewear. Avoid splashing and squirting fluid. Keep the fluid outputs under water except when checking for flow through the endoscope channels.



CAUTION

Ensure that fluid exiting the distal tip of the endoscope is not pointed in a direction that would allow fluid to contact personnel, electrical fixtures or the user.

NOTE

Use detergent in accordance with the detergent manufacturer's instructions regarding the correct dilution, temperature and contact time.

3 Setting up your EFP250

Parts List



Included with your new **EFP250** system are the following parts:

- EFP-MC3 Three-piece hose assembly, including the Suction/Instrument & Air/Water Channels (referred to as “Main Channel Assembly”) color coded in Blue; the Auxiliary Water or Elevator Wire Channels (referred to as “Special Channel Assembly”) color coded in Purple; and the Inlet Hose and Screen
- EFP-MC2 Two piece hose assembly, including the Inlet Hose and Screen and the Auxiliary Water or Elevator Wire Channels (referred to as “Special Channel Assembly”) color coded in Purple
- EFP-MC4 Two-piece hose assembly including the Suction/Instrument & Air/Water Channels (referred to as “Main Channel Assembly”) color coded in Blue; the Auxiliary Water or Elevator Wire Channels (referred to as “Special Channel Assembly”) color coded in Purple
- EFP-WB Wall-mounting Bracket & Assembly (includes four E-Z mount wall anchors and screws)
- EFP-PC Power Cord
- EFP-AK Cleaning Adapter Kit
- EFP-2L Two-liter graduated container
- EFP-F5 Screens for Inlet Hose (5-pack)
- Instruction Manual

Replace hoses as necessary, or when cracks and/or excessive wear is observed. To order replacement parts, please contact your Olympus sales representative or Olympus Customer Care at 800-848-9024.

Wall Mounting your EFP250

Your EFP250 can be placed on a countertop or can be wall-mounted.

(Tools needed: #2 Phillips head screwdriver, pencil and electric drill)

1. There must be a minimum of 4" of clearance on the right side of the unit to allow for access to the power receptacle and fuse.
2. Position wall bracket against the wall and mark the position of the four holes.
3. Install the four self-drilling wall anchors supplied with unit at these points until they are flush with the wall. Place bracket over anchors and install using the four Phillips head screws provided.
4. For masonry walls, use suitable lead or plastic anchors and bolts. These anchors are not supplied.
5. Place the EFP250 on wall bracket. Check to ensure that it is securely mounted.



Connecting Your Endoscope to the EFP250

1. Fill a separate basin/sink with fresh detergent solution per manufacturer's instructions. The basin/sink must be large enough to completely submerge the endoscope.
2. Fill the supplied two-liter container with fresh detergent solution and place it to the side of the EFP250.
3. Prior to submerging the endoscope, ensure that the channel plug and water resistant cap (videoscopes only) are attached to endoscope. Submerge the endoscope and connections into prepared basin/sink.
4. Connect the **BLUE** Main Channel Assembly to the appropriate connections on the endoscope. Plug the other end of the Assembly into the center quick-disconnect on the EFP250.

For those endoscopes with Auxiliary-Water or Elevator-Wire Channels: Connect the PURPLE Special Channel Assembly to the appropriate connections on the endoscope. Then plug the other end of the Assembly into the right side quick-disconnect fitting on the EFP250.

NOTE: If the endoscope does not contain an Auxiliary-Water or Elevator Wire Channel, disconnect the Purple Special Channel Assembly from the EFP250. If the Purple Special Channel Assembly remains connected to the EFP250, fluid will flow from the unattached assembly connector when the Blue start button is activated to flush the air/water and instrument/suction channels of the endoscope.

5. Plug the Inlet Hose into the connection marked "INLET" on the EFP250. Place the end with the screen into the bottom of the container with detergent.

NOTE: Always pump fresh, clean solutions through the EFP250. Do not place the Inlet Hose in the basin/sink along with the endoscope. Doing so will circulate contaminated fluids through the EFP250.

6. Push the power switch to activate the unit. The switch will illuminate when the device is on.

You are now ready to flush your endoscope with the EFP250.

NOTE: If problems occur when inserting connectors, make sure the metal release buttons on the EFP250 are depressed before inserting.



Flushing with Detergent

1. With the endoscope submerged in fresh detergent, push the **BLUE** start button on the EFP250 to pump detergent through the Main Channel Assembly. The LED light will illuminate to indicate that the pump is running.



NOTE

To prevent splashing, ensure that the distal end of the endoscope is submerged prior to activating the pump.

If you are using an Auxiliary-Water or Elevator-Wire connection, push the **PURPLE** start button to pump fluid through the Special Channel Assembly. The LED light will illuminate to indicate the pump is running.

This button will not operate unless the blue button has been activated first.

NOTE

The **BLUE** Main Channel Assembly start/stop button must be activated before the **PURPLE** start/stop button.



2. Carefully lift the distal tip out of the solution in the basin/sink and confirm that fluid is coming out of all channels of the endoscope.



CAUTION

Ensure that fluid exiting the distal tip of the endoscope is not pointed in a direction that would allow fluid to contact personnel, electrical fixtures or the user.

3. Each pump in the EFP250 will stop automatically after pumping for 90 seconds. The LED light(s) will flash to indicate the end of the respective cycles. Push the start/stop button to reset.

NOTE

Either pump in the EFP250 can be immediately stopped at any time by pressing the appropriate start/stop button, or by turning off the main power switch.

4. Soak the endoscope in the detergent solution for the time recommended by the detergent manufacturer.
5. Discard used detergent
6. Rinse the basin/sink with clean water.

NOTE

The EFP250 replaces manual flushing with a syringe. Suctioning, brushing and external cleaning are still required according to manufacturer's instructions.



CAUTION

Disconnect the Auxiliary Water or Elevator-Wire Assembly from the EFP250 after each use.

Flushing with Water

1. Transfer the endoscope into a basin/sink filled with clean water and reconnect the Main Channel (and Special Channel Assembly) to the EFP250.
2. Fill the container with two liters of **clean** water and place the Inlet Hose into it.

3. With the endoscope submerged in clean water, push the **BLUE** start/stop button on the EFP250. The LED indicator light will illuminate to indicate that the pump is running.
4. If you are using an Auxiliary Water or Elevator-Wire connection, push the **PURPLE** start button. The LED indicator light will illuminate to indicate that the pump is running. *This button will not operate unless the blue button has been activated first.*
5. Observe that fluid is coming out of all channels of the endoscope.



CAUTION

Ensure that fluid exiting the distal tip of the endoscope is not pointed in a direction that would allow fluid to contact personnel, electrical fixtures or the user.

6. The EFP250 will stop automatically after 90 seconds. The LED indicator light(s) will flash to indicate the end of the respective cycles. Push either start/stop button to reset.
7. Discard used rinse water.

Flushing with Air

1. Place the screened end of the inlet hose in an empty container on the countertop. Push the **BLUE** (and **PURPLE**) start button(s). The LED indicator light(s) will illuminate to indicate the pumps are running. The EFP250 will automatically stop after 90 seconds. The LED light(s) will flash to indicate the end of the respective cycles.
2. Remove all hose assemblies from the endoscope.
3. Dry the surface of the endoscope following the endoscope manufacturer's instructions.



CAUTION

Disconnect the Auxiliary Water or Elevator-Wire Assembly from the EFP250 after each use.

The endoscope is now ready to be manually high-level disinfected or placed in an automated reprocessor (AER) for high-level disinfection.

Storage

1. Store EFP250 unit according to the environmental conditions specified on page 6.
2. Store inlet hose and channel assemblies by hanging vertically in a clean, temperature-controlled area.

5 System Maintenance

Turn the main power switch “OFF” and disconnect the power cord from the electrical outlet. First clean the external surface of the unit using a clean cloth dampened with a mild detergent solution. Then wipe with a clean cloth dampened with water to remove detergent. Dry with a clean cloth. Hard to clean spots may be cleaned with a light abrasive such as “Soft Scrub”.

NOTE The housing of the EFP250 is water resistant and can be cleaned as described above. However, never immerse the EFP250 in any fluid.



CAUTION Never clean the EFP250 while connected to an electrical outlet.

After each reprocessing cycle, wipe external surface of Channel Assemblies with clean cloth soaked in detergent solution. Rinse with clean water. Autoclave Channel Assemblies at the end of each day's use, if steam sterilization is not available high level disinfect them. (Please refer to Section 7.)

6 Decontamination Cycle

A. EFP250 Channel Assembly Decontamination

- NOTE:** The Inlet Hose is not autoclavable.
- NOTE:** The Inlet Hose is decontaminated along with the EFP250.
- NOTE:** Periodically check the hoses for cracks, dents and or excessive wear. Replace as necessary.
- NOTE:** Do not use the EFP250 to flush an endoscope with high-level disinfectant.
- NOTE:** Do not use the EFP250 to flush alcohol (ethyl or isopropyl).

Decontaminate the channel assemblies daily according to the following procedure.

1. Clean the channel assemblies by immersing in detergent solution prepared according to the manufacturer's instructions for use.
2. Wipe the external surface with a clean cloth.
3. Using the adapter kit supplied by PCI, fill the channel assemblies with detergent. The adaptor kit consists of two-color matched assemblies with Luer and quick-disconnect fittings. Fill a 50-60cc syringe with detergent solution, connect to the adapter assembly luer fitting and flush the channel assembly with detergent. Visually verify that the assemblies contain detergent. Disconnect the adapter kit assemblies and soak for the time recommended by the detergent manufacturer.

4. Remove the assemblies from the detergent solution and immerse in clean water. Discard used detergent solution.
5. Reattach the adapter assemblies and flush channel assemblies with clean water. Detach adapter assemblies and agitate assemblies in water to rinse.
6. Remove assemblies from water and place in a clean basin. Attach adapter assemblies to channel assemblies and purge with air.
7. Disinfect or sterilize channel assemblies
 - i. Disinfect with 10% bleach solution
 1. Immerse assemblies in 10% bleach solution
 2. Attach adapter assemblies to channel assemblies and flush with bleach solution
 3. Detach adapter assemblies and soak for 10 minutes.
 4. Remove assemblies from bleach solution and immerse in clean water. Discard used bleach solution.
 5. Reattach the adapter assemblies and flush channel assemblies with clean water. Detach adapter assemblies and agitate assemblies in water to rinse.
 6. Remove assemblies from water and place in a clean basin. Attach adapter assemblies to channel assemblies and purge with air.
 7. Fill a sterile syringe with 70% isopropyl or ethyl alcohol.
 8. Reattach the adapter assemblies and flush channel assemblies with alcohol.
 9. Detach syringe and fill syringe with air. Flush assemblies with air to remove alcohol.
 10. Wipe external surface with a clean, lint-free cloth.
 11. Store assemblies hanging vertically.
 - ii. Disinfect the channel assemblies using an FDA-cleared high-level disinfectant/sterilant (HLD)
 1. Immerse assemblies in HLD
 2. Attach adapter assemblies to channel assemblies and use 50-60 cc syringe to flush with HLD
 3. Detach adapter assemblies and soak the time and at the temperature recommended by the HLD manufacturer.
 4. Reattach adapter assemblies and fill syringe with air. Attach syringe to adapter assemblies and flush with air to remove HLD from assemblies.
 5. Remove assemblies from HLD and immerse in clean water.

6. Fill syringe with clean water and flush channel assemblies with clean water. Repeat one additional time. Detach adapter assemblies and agitate assemblies in water to rinse.
7. Remove assemblies from water and place in a clean basin. Attach adapter assemblies to channel assemblies and purge with air.
8. Fill a sterile syringe with 70% isopropyl or ethyl alcohol.
9. Reattach the adapter assemblies and flush channel assemblies with alcohol.
10. Detach syringe and fill syringe with air. Flush assemblies with air to remove alcohol.
11. Wipe external surface with a clean, lint-free cloth.
12. Store assemblies hanging vertically.

iii. Steam sterilize at 121°C at 15 psig for 30 minutes.

B. EFP250 Decontamination

1. During routing use, even though the EFP250 should only be used with clean water and clean detergent solutions, it is recommended that the unit be routinely decontaminated at least on a monthly basis.
2. Prepare a detergent solution (enzymatic recommended) according to the detergent manufacturer's instructions for dilution and temperature. Fill a container with enough detergent to immerse the inlet hose and channel assemblies. Place the screened end of the Inlet Hose into the container and attach the quick-disconnect into the connection marked "INLET" on the EFP250.
3. Connect the BLUE Main Channel Assembly and PURPLE Special Channel Assembly to the quick-disconnects on the EFP250. Place these assemblies into the container with the detergent solution.
4. Push the BLUE and PURPLE start buttons. Allow the unit to circulate the detergent solution for approximately 10 seconds. Then press the start/stop button to stop fluid flow. Disconnect the inlet hose and channel assemblies and immerse in detergent solution. Allow the equipment to soak according to the detergent manufacturer's instructions for time and temperature.
5. Fill a separate container with fresh water and place the Inlet Hose and channel assemblies into the container. Connect the quick-disconnect to the connection marked "INLET" on the EFP250. Reattach the Main and Special Channel Assemblies and press both the BLUE and PURPLE start buttons to allow the water to circulate for a full cycle. Discard the rinse water.
6. Prepare a 10% bleach solution. Fill a container with enough bleach solution to immerse the inlet hose and channel assemblies. Place the screened end of the Inlet Hose into the container and attach the quick-disconnect into the connection marked "INLET" on the EFP250.
7. Connect the BLUE Main Channel Assembly and PURPLE Special Channel Assembly to the quick-disconnects on the EFP250. Place these assemblies into the container with the bleach solution.

8. Push the BLUE and PURPLE start buttons. Allow the unit to circulate the bleach solution for approximately 10 seconds. Then press the start/stop button to stop fluid flow. Disconnect the inlet hose and channel assemblies and immerse in bleach solution. Soak equipment for 10 minutes.
9. Fill a separate container with fresh water and place the Inlet Hose and channel assemblies into the container. Connect the quick-disconnect to the connection marked "INLET" on the EFP250. Reattach the Main and Special Channel Assemblies and press both the BLUE and PURPLE start buttons to allow the water to circulate for a full cycle. Disconnect the inlet hose and channel assemblies and immerse in water. Remove inlet hose and channel assemblies from water. Discard the rinse water.
10. Repeat Step 9 for two more times with fresh water (Note: There is no need to disconnect the inlet hose and channel assemblies for the second and third rinse).
11. Remove the inlet hose and channel assemblies from the water and place in a clean, empty container. Press both the BLUE and PURPLE start buttons to flush air through the EFP250 and channel assemblies.
12. Disconnect the inlet hose and channel assemblies.
13. Wipe the external surface of the inlet hose and assemblies with a clean, lint-free cloth.
14. Attach the adapter assemblies to the inlet hose and channel assemblies. Flush with alcohol and then air.
15. Store inlet hose and channel assemblies hanging vertically.

7 Flow Verification

Verifying the flow of the EFP250 can be easily done and should be checked daily to make sure the unit is operating to output specifications. **Flow verification is performed without the EFP250 connected to an endoscope.**

Flow Verification of BLUE Main Channel Assembly:

1. Fill a container with approximately **three liters** of clean water.
2. Connect the inlet tube assembly to the EFP250 and place the screened end into the container with the three liters of water making sure it is fully submerged.
3. Connect the BLUE Main Channel Assembly to the EFP250 and place other ends into the two-liter graduated container supplied with unit. **Disconnect** the PURPLE Special Channel Assembly from the EFP250.
4. Press the BLUE Start/Stop button and allow the unit to operate for a full cycle making sure the BLUE hose assembly remains in the graduated container.
5. Once the EFP250 completes its cycle, observe the volume in the graduated container. This should be **no less than 1.25 liters**.

Flow Verification of PURPLE Special Channel Assembly:

1. Fill a container with approximately **three liters** of clean water.
2. Connect the inlet hose assembly to the EFP250 and place the screened end into the container with the three liters of water making sure it is fully submerged.

3. Connect the BLUE **and** PURPLE assemblies to the EFP250. Place the end of the PURPLE assembly into the two-liter graduated container. Place the outlets of the BLUE assembly into a sink allowing the water to discharge into the sink (**not** into the two-liter container).
4. Press the BLUE **and** PURPLE Start/Stop button and allow the unit to operate for a full cycle.
5. Once the EFP250 completes its cycle, observe the volume in the two-liter graduated container. This should be **no less than 0.2 liters**.

NOTE: If the unit does not meet the above specifications, look for kinked hoses and other restrictions, such as a blocked inlet screen, and repeat the test. If the unit still does not meet the minimum flow requirements, call PCI medical inc. (800 862 3394) for assistance.

8 Quick Troubleshoot & FAQs

If your EFP250 is not running check the following:

1. Ensure that the unit is plugged into a live wall outlet. Make sure that the GFCI breaker has not been tripped.
2. Make sure the On/Off switch (located on the front panel) is on.
3. In the event that the system is still not working, check the fuse. The fuse is located on the right side of the EFP250 in a pullout drawer on the power receptacle. A spare fuse is supplied in this drawer.



WARNING

UNPLUG UNIT BEFORE PULLING OPEN FUSE DRAWER

4. Pull open drawer and remove the fuses. If the filament is damaged, replace the fuse with an equivalent type FSF 5 x 20 mm 2amp 250VAC fuse.
5. If unit is still not working, call PCI medical inc. Customer Service at (800) 862-3394.

Frequently Asked Questions

1. Does fluid flow through the Special Channel Assembly (Aux-Water/EWC) when attached to the EFP250 but not to an endoscope?

Yes, a reduced volume of fluid will flow through the Special Channel Assembly (Aux-Water/EWC) if this hose assembly is connected to the EFP250 (even if the button is not activated). For this reason, the EFP250 instructions indicate to disconnect the Aux-Water/EWC Assembly from the machine if you are not flushing a scope with an Aux-Water/EWC Channel.

2. Can the EFP be used for disinfection at clinics that manually disinfect their equipment?

No, the machine is designed and has an intended use to replace syringe flushing during manual cleaning. The materials of the EFP250 are not designed to be compatible with repeated exposure to a high-level disinfectant.

3. Does the machine eliminate the need for suction?

No. Customers still need to suction according to the Olympus reprocessing instructions, refer to the manual cleaning instructions in the Olympus reprocessing manual. If the customer does not have wall suction, a suction machine should be purchased.

4. Can alcohol be pumped through the EFP250?

No, the EFP250 is intended for use as a cleaning device. Alcohol is part of the post-disinfection procedure. The EFP-250 should not be used with any flammable liquid.

5. I'm having a problem meeting the minimum flow verification.

Flow verification should be performed with just the EFP-250 and its hose assemblies - make sure that an endoscope is not part of the procedure.

Check the inlet hose screen to make sure it isn't plugged. Rinse in cold water to flush any material on the surface of the screen or replace filter (EFP-F5) as necessary.

9 Limited Warranty

Please complete and return the attached Warranty Card to PCI medical inc.

PCI medical inc. warrants the EFP250 Endoscope Flushing Pump to be free of defects in material and workmanship under normal use, for a period of one year from the date of delivery.

If the system is not working correctly or is defective, contact PCI medical inc. and we will repair or replace the unit at our option during the warranty period.

PCI medical inc. assumes no liability for consequential damages of any kind as a result of the use or misuse of the system by the purchaser, the purchaser's employees, or any others.

This warranty is expressly in lieu of all other warranties, guarantees, obligations or other liabilities, expressed or implied.

This warranty gives you specific rights and you may also have other rights, which vary from state to state.

Items not covered by this warranty:

1. Two-liter graduated container.
2. Conditions and damages resulting from any of the following:
 - Improper installation, delivery within the facility, or maintenance
 - Any repair, modification, alteration or adjustment not authorized by the manufacturer
 - Misuse, abuse, accidents or unreasonable use
 - Incorrect electric current, voltage or supply
 - Failure to follow proper procedures for use outlined in this manual
 - Main Channel Assembly, Secondary Channel Assembly and Inlet Hose.
 - Consequential or incidental damages sustained by any person as a result of any breach of these warranties.

Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above exclusion may not apply.

10 Compatible Endoscopes

The following Olympus endoscopes are compatible with the EFP250:

GIF-140, 160 and 180 series gastroscopes except 2-channel models (e.g. GIF-2T160)

CF-140, 160 and 180 series colonoscopes except 2-channel models (e.g. CF-2T160I, CF-2T160L)

PCF-140, 160 and 180 series colonoscopes.

JF-140, TJF-140 and 160 series duodenoscopes.

11 Specifications and Technical Data

Electrical:

115 V 50/60Hz 0.7A

The EFP250 was tested by Met Laboratories, a Nationally Recognized Testing Laboratory (NRTL), and was certified to UL 61010-1 and CSA C22.2 No 61010-1 safety standards. File # E112640

Construction:

FrameAluminum, Painted

Wall bracketSteel, Painted

Dimensions:

Unit5.5" Wide X 7.0" Deep X 7.5" High

Weight.....5 lbs

13 Registration Card

Please complete and return the attached Warranty Card to PCI medical, Inc.

You may complete this warranty card online at: www.pcimedical.com