

Endo-Flush  
Order # ZUTR30004



# OPERATION MANUAL

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ZUT-Lab-004-30004  
REV. 12062018

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## Introduction

### Intended Use

Endo-Flush is designed to eliminate flushing endoscopes with a syringe during the cleaning and high level disinfection process. When properly connected to an endoscope, Endo-Flush automatically flushes all channels of an endoscope and provides consistent, hands free flushing.

Endo-Flush is supplied with a tubing set that connects Endo-Flush to virtually all endoscopes by connecting Endo-Flush to the cleaning adapters provided by all the endoscope manufacturers.

### Labels, Symbols & Signal Words

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 may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.

#### **NOTE**

Indicates additional helpful information.

### Important Safety Information



#### **WARNING**

Plug power cord into a GFI protected receptacle installed in accordance with electrical codes.



#### **WARNING**

Do not immerse the unit in water or ever open the unit.



#### **WARNING**

Do not operate the unit if the cord is damaged or has been exposed to water.



#### **CAUTION**

Endo-Flush is compatible with alcohol, bleach and hydrogen peroxide solutions and such solutions may be used in conjunction with Endo-Flush.



#### **CAUTION**

Proper use of personal protective equipment is highly recommended when using Endo-Flush.



#### **CAUTION**

Always inspect tubing and luer locks for any damage before each use. Always check that every connection is secure before each use.

### Endo-Flush Control Panel and In / Out Connections

**NOTE** To learn more about Service Mode please contact Zutron Medical. There are no serviceable parts inside Endo-Flush. Do not open the unit for any reason.

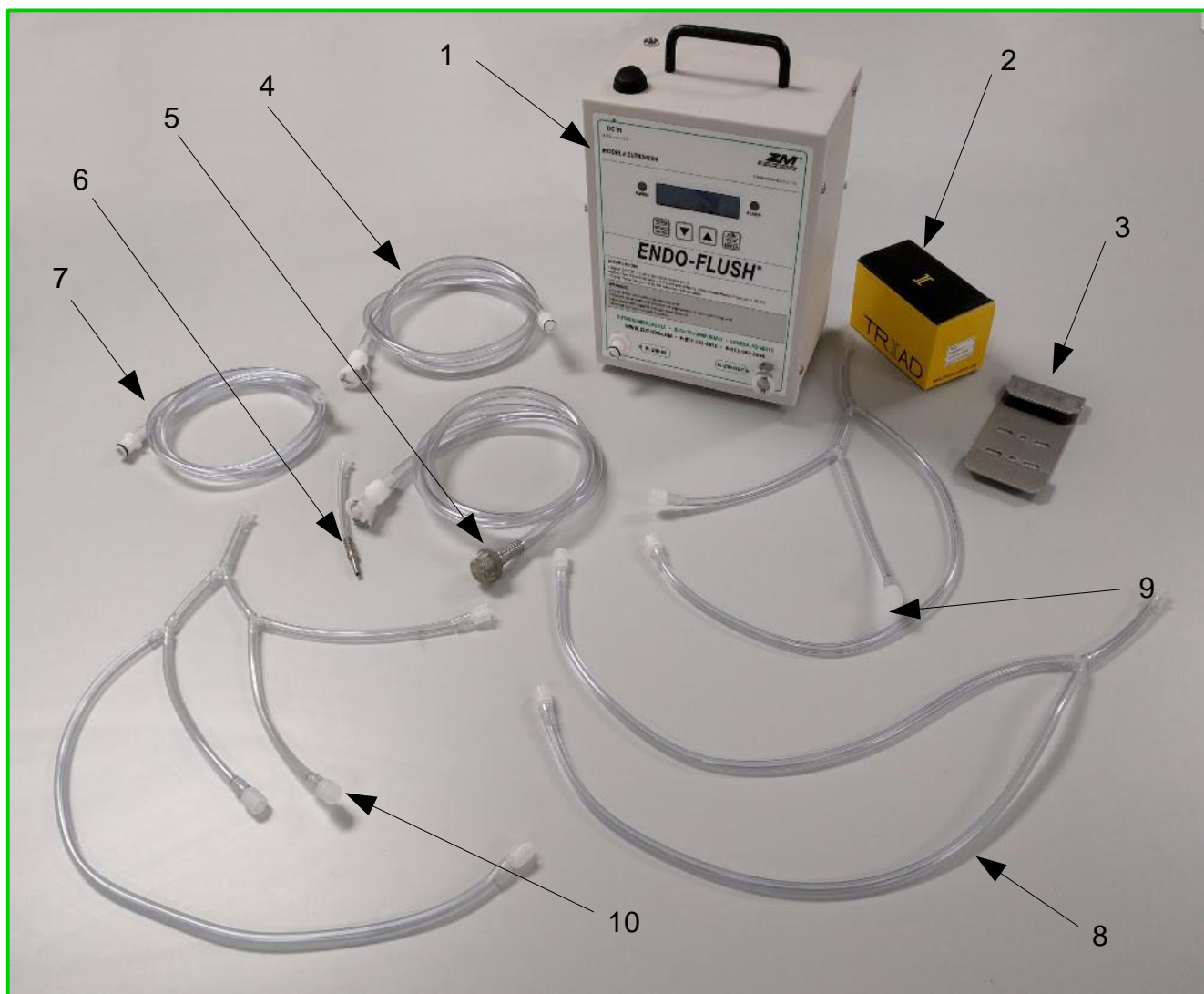
- |                             |                           |
|-----------------------------|---------------------------|
| 1. On / Off Switch          | 6. Scroll Down / Decrease |
| 2. Power Status             | 7. Scroll Up / Increase   |
| 3. Running / Stopped Status | 8. Run / Stop / Enter     |
| 4. Cycle Time               | 9. Fluid In               |
| 5. Menu / Service Mode      | 10. Fluid Out             |



## Endo-Flush Components

The complete Endo-Flush system is made up of the following components:

- |    |                        |     |                        |
|----|------------------------|-----|------------------------|
| 1. | Endo-Flush unit        | 6.  | Flow Verification Tube |
| 2. | 24V Power Supply       | 7.  | Flushing Tube Adapter  |
| 3. | Wall Mount Bracket     | 8.  | 2-Way Flushing Tube    |
| 4. | Pick-Up Tube Extension | 9.  | 3-Way Flushing Tube    |
| 5. | Pick-Up Tube           | 10. | 4-Way Flushing Tube    |



## Function of Endo-Flush Tubing Components

**Pick-Up Tube** – Draws fluid into the Endo-Flush.

**Pick-Up Extension Tube** – Extends the length of the Pick-Up Tube by 40” if necessary.

**2-Way Flushing Tube** – Connects to an endoscope with 2 connection ports.

**3-Way Flushing Tube** – Connects to an endoscope with 3 connection ports.

**4-Way Flushing Tube** – Connects to an endoscope with 4 connection ports.

**Flushing Tube Adapter** – Connects the 2-Way, 3-Way, & 4-Way Flushing Tubes to the Endo-Flush.

**Flow Verification Tube** – Used during the Daily Flow Verification and Flow Volume Verification Test to ensure Endo-Flush is delivering the proper amount of fluid.

## Suggested Exposure Time of Detergent or Decontamination Solution

It is important that the user is aware of the exposure time recommended by the manufacturer of the enzymatic, detergent, or decontamination solution being used in the cleaning process. It is essential that the channels of the endoscope being cleaned be exposed to the enzymatic, detergent, or decontamination solution at least for the manufacturer’s minimum recommended time.

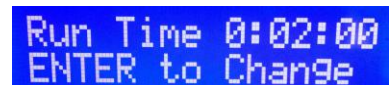
The user may adjust the run time of the Endo-Flush based on the enzymatic, detergent, or decontamination solution manufacturer's minimum exposure time.

## Adjusting the Run Time of Endo-Flush

1. To adjust the run time, press the **MENU/SERVICE MODE** button when the unit is on and the screen is lit.



2. On the following screen, press the **RUN/STOP/ENTER** button to change the run time.



3. Use the **UP** and **DOWN** arrow buttons to adjust the run time of the unit and press the **RUN/STOP/ENTER** button to save the settings.



4. Press the **UP** arrow to get to the next screen shown in Step 5.

5. Press the **RUN/STOP/ENTER** button again to exit and save your changes.





## Flushing, Rinsing and Purging

1. Turn on Endo-Flush by pressing the On/Off switch at the top of the unit. The green power light will come on and display screen will illuminate indicating that the unit is now powered on.
2. Locate the **Flushing Tube Adapter**, attach the male end to the connection port on the front of the unit labeled “**OUT**”. Attach the other end to the appropriate **2-Way, 3-Way, or 4-Way Flushing Tube**.
3. Attach the luer locks on the appropriate **2-Way, 3-Way, or 4-Way Flushing Tube** to the connection ports on the cleaning adapter(s) provided by the endoscope manufacturer.
4. Locate the **Pick-Up Tube**, attach the female end to the connection port on the front of the unit labeled “**IN**”. Attach the **Pick-Up Tube Extension** to the **Pick-Up Tube**, if necessary, to reach approved detergent or rinse water.
5. Place the screened end of the **Pick-Up Tube** in an approved detergent, high level disinfection solution, alcohol, or rinse water when flushing or rinsing the endoscope. Verify the screened end is deeply submerged in the approved solution or rinse water. Place the screened end of the **Pick-Up Tube** on the counter when purging the endoscope.
6. Press the **RUN/STOP/ENTER** button located on the front panel to begin the flush, rinse or purge cycle. The timer on the display will begin counting down.
7. When flushing or rinsing the endoscope channels, verify that fluid is exiting all channels of the endoscope and no air bubbles are exiting any channels.  
  
If fluid fails to exit all channels, then a channel may be blocked and the endoscope may need to be manually brushed and cleaned again. The flushing process will then need to be repeated until flow through all channels of the endoscope is verified. The endoscope should be taken out of service if it is determined that any of the channels of the endoscope are obstructed.
8. In the case of a purge cycle, observe all channels of the endoscope to determine that all channels of the endoscope have been purged of fluid.
9. After the timer counts down to zero the Endo-Flush will beep and stop, indicating that the flush, rinse or purge cycle is complete.
10. Repeat steps 5-9 to perform another flush, rinse or purge cycle.

## Daily Flow and Flow Volume Verification Test

A Daily Flow and Flow Volume Verification Test should be performed at the beginning of each day before use of Endo-Flush to verify that Endo-Flush is operating correctly and delivering the proper amount of fluid. Follow the steps below to perform the Daily Flow and Flow Volume Verification Test.

**NOTE** A 500ml+ graduated cylinder is required to perform this test (not included)



**WARNING** Failure to perform the Daily Flow and Flow Volume Verification Test puts the user at risk of using Endo-Flush when it is not functioning as it is designed to do. Do not use Endo-Flush if it fails the Daily Flow and Flow Volume Verification Test.

## Flow Volume Verification Setup and Prime

1. Turn on Endo-Flush by pressing the On/Off switch at the top of the unit. The display will illuminate indicating that the unit is now powered on.
2. Locate the **Pick-Up Tube**, attach the female end to the connection port on the front of the unit labeled “**FLUID IN**”.
3. Place the screened end of the **Pick-Up Tube** into water. Verify the screened end is deeply submerged in the water.
4. Locate the **Flushing Tube Adapter**, attach the male end to the connection port on the front of the unit labeled “**FLUID OUT**”.
5. Attach the other end of the **Flushing Tube Adapter** to the **Flow Verification Tube**. Place the open end of the **Flow Verification Tube** into the sink.
6. To prime the unit, press **RUN/STOP/ENTER** button to begin fluid delivery. Once there is a steady flow of fluid exiting the **Flow Verification Tube**, the unit is primed.
7. Press **RUN/STOP/ENTER** to stop flow.

## Performing a Flow Volume Verification Test

**NOTE** A 500ml+ graduated cylinder is required to perform this test (not included)

1. With the tubing set up as required for a Flow Volume Verification Test, place the open end of the **Flow Verification Tube** into an empty 500ml or more graduated cylinder.
2. Adjust the timer to 15 seconds.
3. Press the “**RUN/STOP/ENTER**” button to begin the test and the timer display will begin counting down and fluid will begin flowing into the graduated cylinder.
4. Once the timer counts down to zero flow will stop.
5. Remove the **Flow Verification Tube** from the graduated cylinder and measure how much fluid was dispensed.
6. If the volume is greater than 400mls, then Endo-Flush is ready to use.
7. If the volume is not greater than 400mls, please contact your local distributor or Zutron Medical for further assistance.



## Daily Decontamination Procedure

Endo-Flush should be decontaminated at the end of each day. Daily decontamination ensures a clean Endo-Flush unit and **Pick-Up Tube** and **Flushing Tubes** for each day.

To decontaminate the Endo-Flush and the **Pick-Up Tube** and **Flushing Tubes** the following solutions are recommended:

- Clean rinse water
- 10% bleach solution
- 70% isopropyl alcohol solution

All tubing utilized during manual cleaning process of endoscopes must be decontaminated daily as well as the Endo-Flush unit itself.

If the user elects to use an alternative High level disinfectant solution other than recommended 10% bleach solution, the user must allow the solution to remain in contact with Endo-Flush and all tubing being decontaminated for the recommended contact time given by the manufacturer instructions for use (IFU) of the solution used.

**NOTE** Inspect the **Pick-Up Tube** filter for any debris, clogs, or holes

## Performing the Daily Decontamination Procedure

1. The Daily Decontamination Procedure will be performed at the end of each day.
2. Wipe down Endo-Flush machine with facility approved surface disinfectant.
3. Remove all tubing from the Endo-Flush.
4. Inspect tubing and filter for debris, clogs, or holes.
5. Manually remove any debris, open any clogs and dispose of tubing with holes.
6. Soak all tubing in 10% bleach for 2 minutes or time per facility approved High Level Disinfectant (HLD) instructions for use (IFU). Be sure all tubing is under solution.
7. Rinse all tubing with fresh clean water.
8. Locate the **Pick-Up Tube** and attach it to Endo-Flush by inserting the female end into the **FLUID IN** port on the front of the Endo-Flush. If the user used the **Pick-Up Tube Extension**, it should be attached to Endo-Flush at the **FLUID IN** port and then the **Pick-Up Tube** should be attached to the **Pick-Up Tube Extension**.
9. All flushing tubing utilized in the endoscope manual cleaning process must be subjected to the Daily Decontamination Procedure. Follow this recommendation protocol for each of the **2-Way, 3-Way, 4-Way** and **Flushing Tube Adapter** tubing utilized during endoscope manual cleaning process.

*Continued on Page 9.*

## Performing the Daily Decontamination Procedure (*Continued*)

10. Place the screened end of the **Pick-Up Tube** into a 500 ml container of 10% bleach or HLD solution. Verify the screened end of the **Pick-Up tube** is deeply immersed in the 10% bleach or HLD solution.
11. If the **Flushing Tube Adapter** is utilized in the endoscope manual cleaning process, attach the male end of the **Flushing Tube Adapter** to the **FLUID OUT** port on the front of the Endo-Flush.
12. Attach the **Flushing Tube** by inserting the male end of the **Flushing Tube** either into the **FLUID OUT** port on the front of the Endo-Flush or to the **Flushing Tube Adapter**, as the case may be.
13. Immerse open ends (luer locks) of the **Flushing Tube** in a 10% bleach or HLD solution. This creates a closed loop for the circulation of solution through the Endo-Flush and **Pick-Up** and **Flushing Tubes**.
14. Press the **RUN/STOP/ENTER** button on the front of the Endo-Flush and flush the 10% bleach or HLD solution through the Endo-Flush and the attached **Pick-Up** and **Flushing Tubes**. Once the **Pick-Up** and **Flushing Tubes** are full of solution and no air bubbles are present in any part of the tubing, press **RUN/STOP/ENTER** to stop the Endo-Flush.

Allow the solution to remain in contact with Endo-Flush and all tubing being decontaminated for 2 minutes with 10% bleach or recommended contact time given by HLD utilized.

15. Remove open ends of attached tubing from the decontamination solution. Lay them open to air in a clean sink or container to avoid being sprayed. Press **RUN/STOP/ENTER** and run Endo-Flush for 1 minute to purge all decontamination solution from Endo-Flush, attached **Pick-Up** and **Flushing Tubes**. Press **RUN/STOP/ENTER** to stop Endo-Flush.
16. Immerse the open ends of the **Flushing Tubes** in a 500ml container of clean water. Press **RUN/STOP/ENTER** and run the Endo-Flush for 1 minute to flush clean water through Endo-Flush, attached **Pick-Up** and **Flushing Tubes** to rinse all the 10% bleach or HLD solution from the tubing, Press the **RUN/STOP/ENTER** to stop Endo-Flush.
17. Remove open ends of attached tubing from the water. Lay them open to air in a clean sink or container to avoid being sprayed. Press **RUN/STOP/ENTER** and run Endo-Flush for 1 minute to purge all water from Endo-Flush, attached **Pick-Up** and **Flushing Tubes**. Press **RUN/STOP/ENTER** to stop.
18. Immerse the open ends of the **Flushing Tubes** in a 500 ml container of 70% isopropyl alcohol. Press **RUN/STOP/ENTER** and run Endo-Flush for 30 seconds to flush alcohol solution through Endo-Flush, attached **Pick-Up** and **Flushing Tubes**. Press the **RUN/STOP/ENTER** to stop Endo-Flush.
19. Remove open ends of attached tubing from the alcohol. Lay them open to air in a clean sink or container to avoid being sprayed. Press **RUN/STOP/ENTER** and run Endo-Flush for 2 minutes to purge all alcohol from Endo-Flush, attached **Pick-Up** and **Flushing Tubes**. Press **RUN/STOP/ENTER** to stop.
20. Inspect the tubing to determine that the air purge has removed all of the alcohol solution from the tubing.
21. Repeat the above processes for each piece of **Flushing Tubing** that was utilized during the endoscope manual cleaning process.
22. Store by hanging tubing in a vertical position in a clean, dry area to allow for drying overnight.

## Troubleshooting

<p>Green power light on the front of the unit is not lit.</p> <p>Front display does not show a display.</p>	<p>Verify that there is power to the electric outlet to which the unit is plugged in</p> <p>Verify that power cord is properly connected.</p> <p>If properly connected, there may be a issue with the power cord. Contact Zutron Medical to get a replacement power cord.</p>
<p>Fluid is leaking from the unit or a tubing connection.</p>	<p>Please contact Zutron Medical for replacement of connector or tubing or to send the unit in for service. If under warranty, there will be no charge.</p>
<p>Timer is counting down and the pump is running, but there is no fluid intake or fluid coming out of the Flushing Tube.</p>	<p>Verify Pick-Up Tube and Flushing Tube are properly connected to front of device.</p> <p>Verify Pick-Up Tube screened end is fully submerged in solution.</p> <p>Check whether Pick-Up Tube is blocked at the screened end or there is any other noticeable blockage in the Pick-Up Tube.</p> <p>Verify that the Flushing Tube tubing or end of the tubing is not blocked in any way.</p> <p>Contact Zutron Medical for service if the above troubleshooting steps do not resolve the problem.</p>
<p>Device fails the Daily Flow or Flow Volume Verification</p>	<p>Check all tubing connections as described above</p> <p>Please contact Zutron Medical for service.</p>