Better Water LLC

Divert-to-Drain (Wall-Mounted)

Operator Manual

rev. Apr 2013

Better Water LLC; 698 Swan Dr; Smyrna, TN 37167; www.betterwater.com

Better Water LLC

Divert-to-Drain (Wall-Mounted)

Models & Specifications	
Model	**EQDTD-WM-RM-2**
Electrical Requirement	120 VAC / 60 Hz
Control Voltage	24 VAC
Piping	Schedule 80 PVC
Dimensions	6” Depth x 18” Width x 18” Height
Weight	22 lbs

Better Water LLC carries over 2000 parts, accessories and consumables in stock, and ready to ship including:

- Carbon Filters *(provides 10 Minute Empty Bed Contact Time)*
- Duplex & Simplex Softener
- Storage Tanks
- Brass Pressure Regulator
- Blend Valve
- City Boost Pump
- Thermometer
- Floor Valve Boxes
- Remote Alarms
- & More!

Central Water Systems | Central Delivery Systems | Reverse Osmosis Units | Portable RO Units

Pre-Treatment Racks | Post-Treatment Racks | DI Exchange Accessories | Consumables

Hemodialysis | **Medical** | **Pharmaceutical** | **Laboratories** | **Commercial** | **Industrial**

Better Water LLC; 698 Swan Dr; Smyrna, TN 37167; Phone (615) 355-6065, Fax (615) 355-6063, Website www.betterwater.com

Visit our website to see our complete product line of water purification products!

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Our Company

Better Water LLC is a leading integrated manufacturer of water treatment equipment and components for the industrial, commercial and institutional markets.

Located in Smyrna, Tennessee, Better Water LLC continues its history of manufacturing and distribution of equipment specifically designed for the renal dialysis market.

Founded in 1971, Better Water LLC has built a reputation for solving our customers' toughest problems with high quality products and unmatched service.

Contact Us

Better Water LLC
698 Swan Dr
Smyrna, TN 37167

Phone (615) 355-6063
Fax (615) 355-6065

Technical Support:
Phone (615) 355-6063, press "1"
Email support@betterwater.com

Customer Service:
Phone (615) 355-6063, press "3"
Email customerservice@betterwater.com

Technical Phone Support

Support is available regarding all Better Water LLC systems,
24 hours a day,7 days a week.

- Normal business hours are Monday through Friday from 8:00 am until 3:30 pm, Central Standard Time (*excluding holidays*)

Call (615) 355-6063, press "1" for Technical Support

Emergency assistance is available after normal business hours *(including holidays)* by calling **(615) 708-8627.**

BEFORE calling for emergency assistance:

- Check the Troubleshooting guide in this manual
- Check the electrical-power connections, fuses/circuit breakers *(if applicable)*
- Check all valves to ensure each is in the correct position *(if applicable)*

Technical Support Info Online

Our website, **www.betterwater.com**, which is updated frequently, contains a wealth of technical support information on the **SUPPORT** tab and includes:

- Operator and Service Manuals
- Interactive Frequently Asked Questions for Troubleshooting
- Consumables and Accessories Lists
- Technical Service Bulletins

For your convenience there are also online forms for placing **Orders** and requesting **Returned Goods Authorization**. These are Adobe forms that can be downloaded and either faxed or emailed to us.

WARNINGS

1. It is unsafe to operate or service this device without first reading and understanding the **entire** Operator's Manual. Keep this manual and other associated documentation for future reference.

2. Misuse, improper operation, and/or improper monitoring of this system could result in serious injury, death, or other serious reactions to patients undergoing hemodialysis treatment.

3. Misuse, improper use or handling of disinfectants and chemical cleaning solutions could result in serious injury or even death. You must comply with the information contained in the Material Safety Data Sheet (MSDS) for the chemical being used.

4. To avoid electrical shock hazard, do not operate this device when the covers or panels are removed.

5.  **ELECTROMAGNETIC INTERFERENCE: This device can create and radiate radio frequency energy and may cause harmful interference if not installed according to the manufacturer's instructions**.

CAUTIONS

1. When used as a medical device, federal law restricts this device to sale by or on the authority of a physician. Per CFR 801.109 (b)(1).

2. Improper operation of this device could result in a low or no-flow alarm on the dialysis machines.

3. Misuse or improper operation of this device will void any warranty.

4. Where water is mentioned, unless otherwise noted, it must be AAMI standard quality water.

5. Electrical and plumbing connections must adhere to local statutes and any facility codes. Connect this device to a proper ground connection in accordance with the National Electrical Code. Do not remove the ground wire or ground plug. Do not use an extension cord with this device.

6. Do not remove any Caution, Warning or any other descriptive labels from the device.

7. Do not operate this device in an explosive environment or in the presence of flammable materials. Do not use this device to store, mix or transfer flammable liquids.

8. Movement or vibrations during shipment may cause connections to loosen.

9. Do not operate this unit in an environment where temperatures may be below 50° F or above 90° F.

10. This device should not be used for purposes outside the device's stated applications, specifications or limitations.

INTRODUCTION

The Better Water LLC Divert-to-Drain is manufactured to the utmost quality. With proper care, preventative maintenance, and proper use, it will be a valuable component of the water treatment system.

Before starting you should first read and have a thorough understanding of this entire Operator Manual. It describes in detail the steps and procedures for safe usage of the Divert-to-Drain.

Once the device has been delivered to you, "it is the **responsibility** of the **Medical Director** to ensure that the [device] is operated, monitored, and maintained in such a manner so as to satisfy all applicable standards for which the water may be used". (*Quoted from HHS Publication FDA 89-4234*).

PRODUCT DESCRIPTION

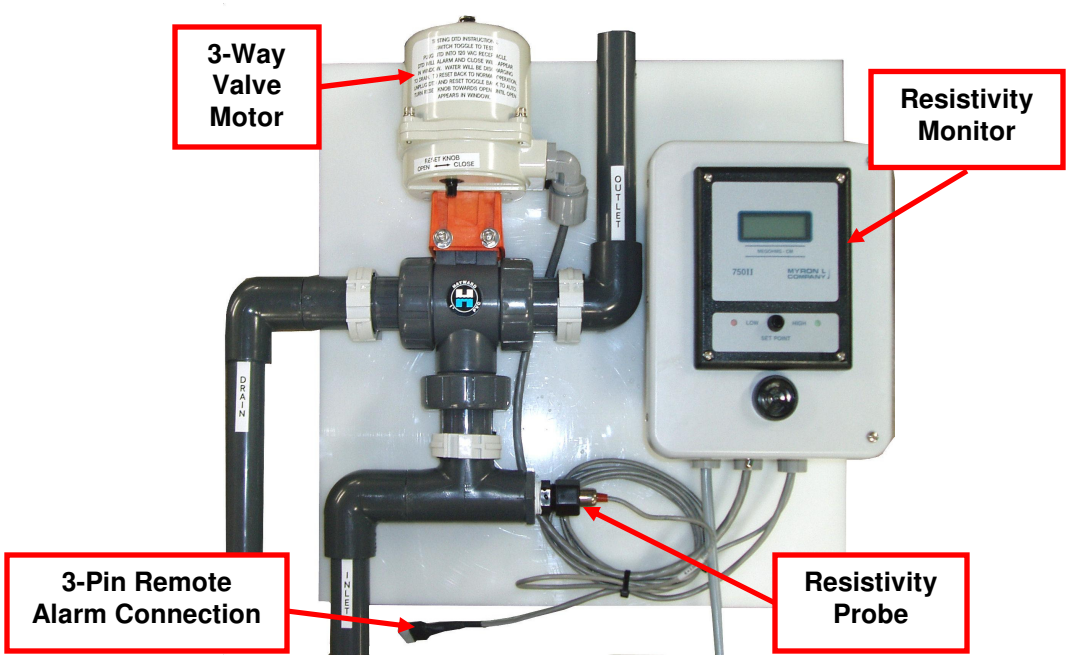
A Divert-to-Drain uses a Resistivity Monitor with an adjustable set-point to check the resistivity of incoming water. Water quality readings from the Resistivity Probe are processed by the Resistivity Monitor which in-turn either…
… opens a valve to allow water to flow through to the loop (*good water quality > 1.2 megohm*)
- or -
… closes a valve to divert the water to drain (*poor water quality < 1.2 megohm*)

The Divert-to-Drain operates as follows:

1. When the water quality is below the set-point, the Resistivity Controller directs the 3-way valve to open the TO-DRAIN side and the water will flow to drain.

2. When the water quality is good, the Resistivity Controller directs the 3-way valve to open the distribution side and the water will flow to the Loop.

3. Additionally the operator may choose to manually divert the water to drain.



GENERAL REQUIREMENTS

1. Water Connection:
a. RO Water Inlet Connections, 1” Schedule 80 PVC pipe
b. Loop Outlet Connections, 1” Schedule 80 PVC pipe

2. Drain Connection:
a. 1” Schedule 80 PVC pipe

3. Drain requirement:
a. Close proximity to the Divert-to-Drain
b. Must have an air gap

4. Electrical requirements:
a. 120 VAC, 20 AMP, Dedicated GFCI Outlet
b. Location: on the wall, within 5’ of the Divert-to-Drain

5. Wall space:
a. 18” x 18”

INSTALLATION of the DIVERT-to-DRAIN

1. Locate the unit in a place safe from water exposure, and close to a 120 VAC / 60 HZ power supply.

2. Mount the unit to the wall using adequate anchors.

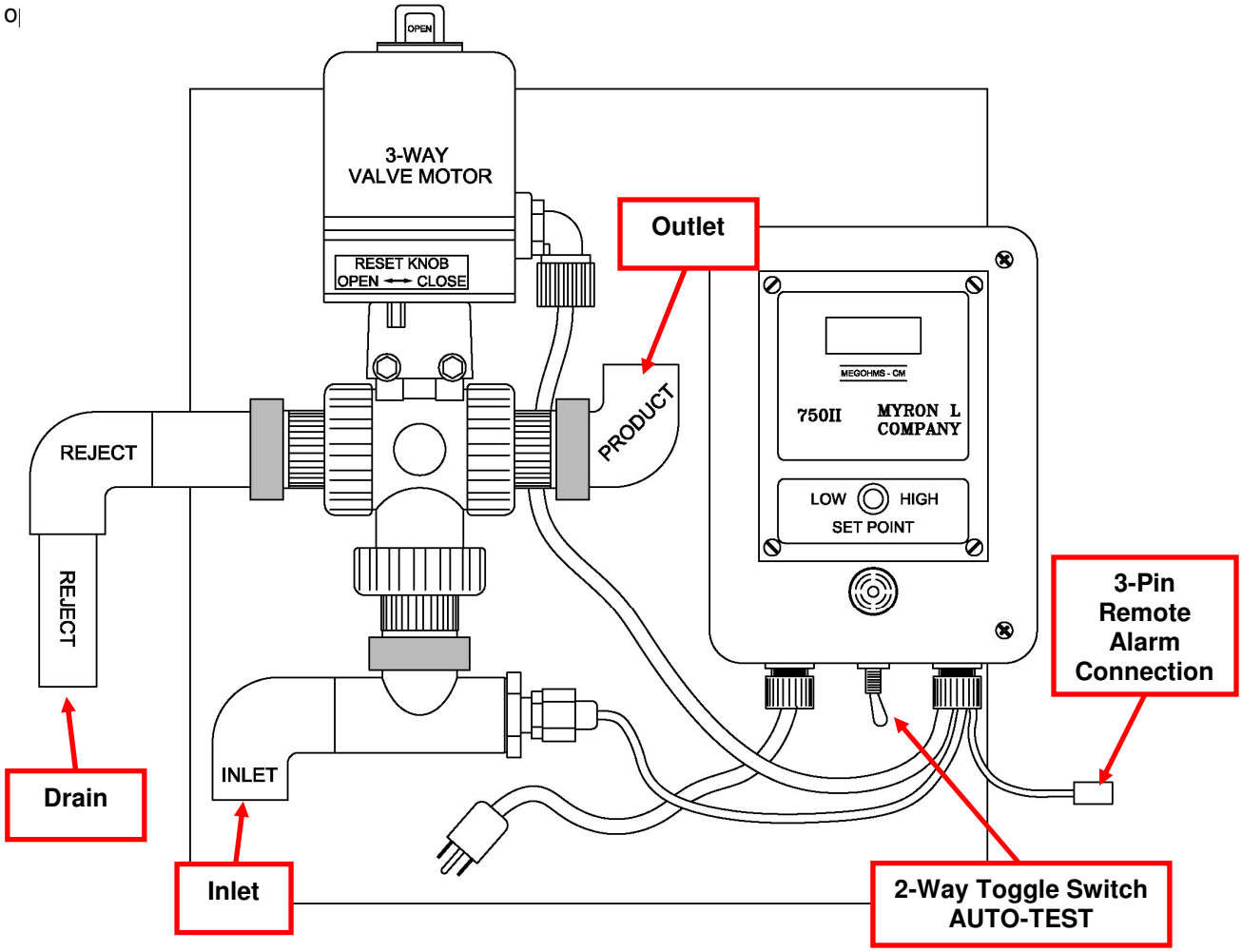
3. Connect the “Inlet” port on the Divert-to-Drain unit to the Loop Feed Line coming from the water system.

4. Connect the “Outlet” port on the Divert-to-Drain unit to the Loop Feed Line going to the treatment floor.

5. Connect the “Drain” port on the Divert-to-Drain unit to a sustainable drain that has an air gap.

6. Plug the unit into a GFI power supply.

7. Flip the **2-Way Toggle Switch** on the bottom of the Resistivity Monitor to **AUTO** for normal o



NOTE

There must be a check valve located between the inlet to the Divert-to-Drain and the outlet of the repressurization pump. Not all systems have these in place, so verify whether or not your system has one BEFORE installing the Divert-to-Drain.

CONNECTING the REMOTE ALARM BOX

1. Attach the 3-Pin Connector to the end of the wire coming from the patient floor/remote alarm location.

2. Verify that the wires at the 1, 2, and 3 positions on the polarized 3-Pin Connector (supplied with the DTD) correspond with the 1, 2, and 3 positions on the 3-Position Terminal Strip inside the Remote Alarm Box.

3. To verify proper connection, flip the **2-Way Toggle Switch** on the bottom of the Divert-to-Drain Control Box to **TEST**.

a. The alarm should sound if properly connected.
b. Flip the **2-Way Toggle Switch** back to **AUTO** for normal operation of the Divert-to-Drain.

part#
EQASSYWQA01844
Water Quality Remote Alarm

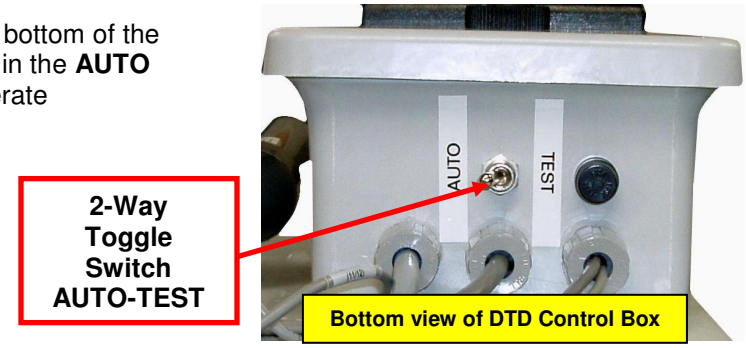
AUTOMATIC OPERATION

Based upon the actual resistivity of the inlet water and the set-point, the Resistivity Controller will automatically control the 3-Way Valve.

If actual resistivity is less than the set-point, the water will divert to drain. The unit will divert for 90 seconds (*timed*) to prevent any back and forth actuation of the cam shaft. This is possible if the water quality jumps above then below the set-point within a 15-30 second time-frame.

If actual resistivity is greater than the set-point, then water will flow to the Distribution Loop.

1. The **2-Way Toggle Switch** on the bottom of the Divert-to-Drain Control Box, must be in the **AUTO** position for the Divert-to-Drain to operate automatically.



MANUAL TEST

By switching the **2-Way Toggle Switch** to the **TEST** position, the water will flow to drain regardless of the actual resistivity. This TEST position is used to check the functionality of the Divert-to-Drain.

NOTE: BEFORE TESTING the Divert-to-Drain, turn the Distribution Pump(s) OFF.

NOTE: Refer to the picture below, detailing the various items described in this section.

1. The Divert-to-Drain must be plugged into an electrical receptacle.

2. Switch the **2-Way Toggle Switch** to **TEST**.

3. Turn the Distribution Pump(s) **ON**.

4. Verify the following:
- **a.** Water is going to drain
- **b. CLOSE** will display in the **Open/Close Indicator** atop the 3-Way Valve Motor
- **c.** The Resistivity Monitor should display **0**
- **d.** The Remote Alarm Box has the Poor Quality Light lit, and the Piezo is sounding

RESET TO NORMAL OPERATION AFTER TEST

5. Turn the Distribution Pump(s) **OFF**.

6. Unplug the Divert-to-Drain from the electric receptacle.

7. Switch the **2-Way Toggle Switch** to **AUTO**.

8. Locate the **Reset Knob** on the bottom of the **3-Way Valve Motor**.
- Note the directional arrow label which indicates which direction to turn the knob to open and close the valve.

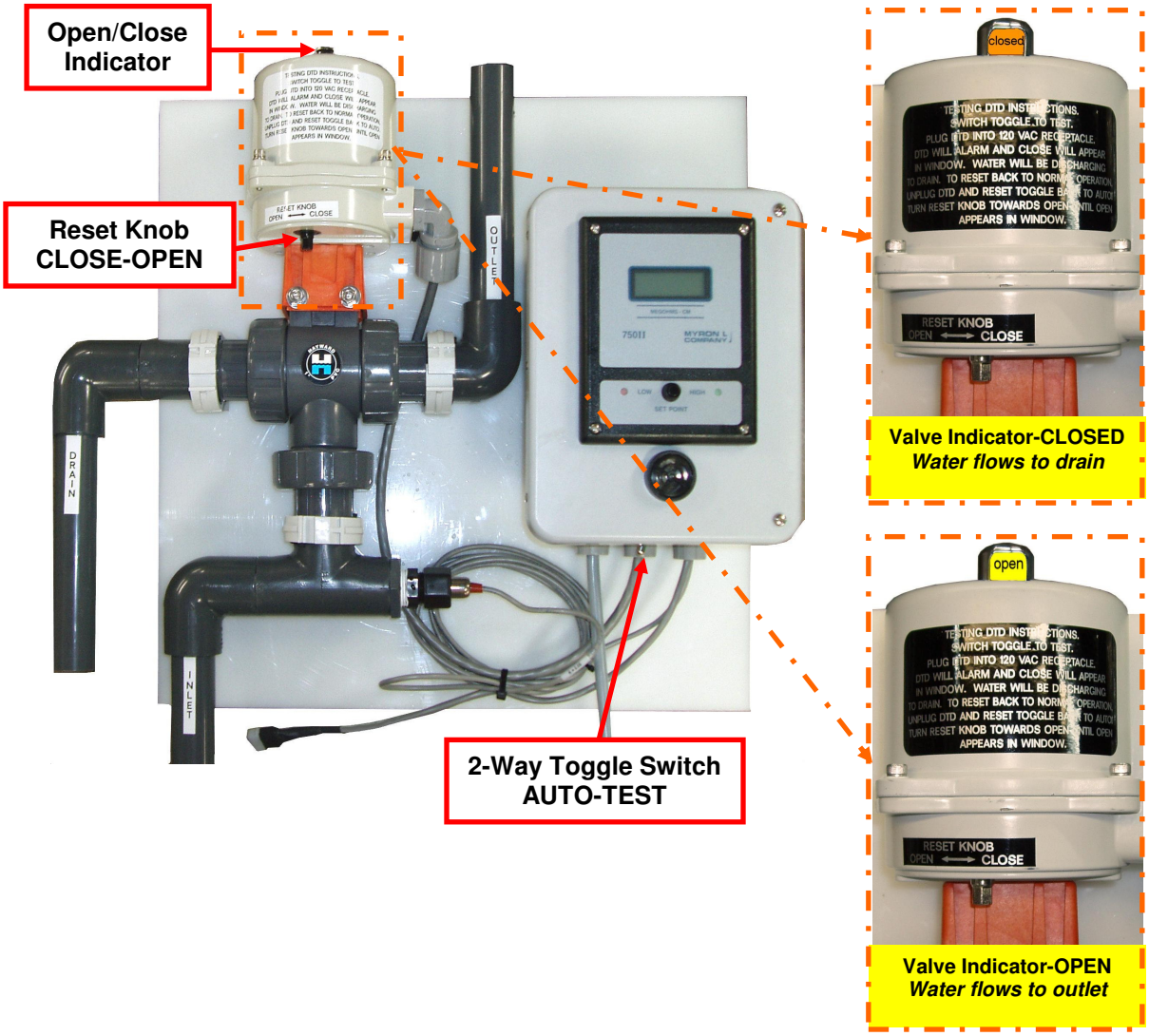
9. Using a 5/16 wrench or ratchet, turn the **Reset Knob** toward **OPEN**, as indicated by the directional arrow label.
- a. **OPEN** will display in the **OPEN/CLOSE Indicator** on top of the **3-Way Valve Motor**.

10. Turn on the Distribution Pump(s) **ON**.

11. Verify that water is flowing through the Divert-to-Drain's "Outlet" and that no water is flowing to "Drain".

12. Plug the Divert-to-Drain into electrical receptacle.

13. Test Complete.


Open/Close Indicator
Reset Knob CLOSE-OPEN
2-Way Toggle Switch AUTO-TEST
closed
RESET KNOB
OPEN ⟷ CLOSE
Valve Indicator-CLOSED
Water flows to drain
open
RESET KNOB
OPEN ⟷ CLOSE
Valve Indicator-OPEN
Water flows to outlet

SYSTEM MAINTENANCE, General

Maintenance Task	Frequency (more often if needed)	Notes
Check the system for leaks	Daily	Visual Inspection
Manually test DTD Valve open/close	Periodically	See “Manual Test” section
Set/Adjust set-point on Resistivity Monitor	As Needed	Contact Tech Support for instructions

LONG TERM STORAGE of the DIVERT-to-DRAIN

PUTTING DTD UNIT INTO STORAGE

1. Perform a disinfect of the water treatment system, where disinfectant goes through the Divert-to-Drain.

2. Disconnect power, then coil and secure the power cord.

3. Disconnect from the Remote Alarm, then coil and secure the connection wire.

4. Disconnect from water source, distribution loop, and drain, allow it to drain completely.

5. Allow unit to completely air dry.

6. Zip-tie plastic bags over all openings to prevent contamination:
   - Drain/Reject connection
   - Inlet connection
   - Outlet/Product connection

BRINGING DTD UNIT BACK FROM STORAGE

1. Remove protective plastic bags from openings.

2. Reconnect to water source, distribution loop, and drain.

3. Reconnect to Remote Alarm.

4. Reconnect to power.

5. Perform a disinfect of the water treatment system, where disinfectant goes through the Divert-to-Drain.

RELATED REPLACEMENT PARTS

DESCRIPTION	PART#	PICTURE
Water Quality Alarm Box	EQASSYWQA01844	
Resistivity Probe for Myron L Monitor	EQMODI01676	
Myron L Resistivity Monitor	EQMODI01674	
SSAC Time Delay Relay	ELIDRL01350	
1 AMP Fuse, Fast-Acting, Buseman	ELLFFS01160	

Pictures do not reflect the size of the item in relation to the other pictures

TROUBLE-SHOOTING GUIDE

The information in this document is intended to serve as a guide only for qualified operators. It is not all inclusive of the problems that may be encountered. This guide should aid operators with reminders and routine trouble-shooting tasks.

For any problem outside the confines of this guide, call for technical assistance.

Problem	Possible Causes	Possible Solutions
No display on Resistivity Monitor	**1. Not plugged in**	**1.** Verify that the DTD is plugged in
" "	**1. DTD fuse blown**	**1.** Replace the DTD fuse (*see replacement parts list*)
Divert-to-Drain not diverting properly	**1. 3-Way Valve stuck**	**1.** Manually Close and Open the 3-Way Valve using the Reset Knob
" "	**1. Resistivity probe could be bad**	**1.** Check the resistivity probe and replace if necessary
" "	**1. Set-Point not set properly**	**1.** Contact Technical Support as to how to check and/or reset the set-point.

LIMITED WARRANTY TERMS and CONDITIONS

a. This limited warranty is given only to the original buyer and covers the equipment delivered with this limited warranty.
b. The buyer shall be barred from any recovery on this limited warranty or otherwise for damages due in whole or in part to…

… unreasonable use
… improper operation
… use beyond normal fashion
… failure to follow instructions
… failure to maintain the product in good condition and repair
… or the like.

c. If the buyer discovers or should have discovered a defect in which it is reasonable to conclude that damage, either personal, property, or economic, may result, the buyer's continued use of the product shall constitute any assumption of risk by the buyer and a bar to any recovery for breach of this limited warranty or otherwise.
d. No oral or written representation, information, or advice given by Better Water LLC or any of its representatives shall create a warranty or in any way increase the scope of this express limited warranty and shall not form a part of the basis for bargain.

WHAT IS WARRANTED AND FOR HOW LONG?

a. All equipment, excluding ion exchange and filtration media and cartridges, are warranted to be free from factory defects in materials, and workmanship under normal use for a period of one (1) year from the date of shipment.
b. It is a condition precedent to recovery on this limited warranty that the buyer strictly comply with all operating and maintenance guidelines established by Better Water LLC and that the serial number (*if applicable*) is intact and legible on the equipment.
c. It is a condition precedent to recovery on this limited warranty for damage to the external finish of the equipment that the buyer notifies Better Water LLC at the time of the installation that the finish is damaged.

WHAT IS REMEDY FOR BREACH OF THIS LIMITED WARRANTY or NEGLIGENCE BY BETTER WATER LLC

a. Buyer's sole and exclusive remedy for any breach of this limited warranty or negligence by Better Water LLC shall be repair or replacement of the defective part, at the option of Better Water LLC, provided such defective part is returned to Better Water LLC for inspection.
b. Better Water LLC shall not be obligated to supply an exact replacement of the defective part and reserves the right to substitute new and improved parts.
c. Better Water LLC shall provide at no cost to buyer, labor to remove and/or replace defective parts covered by this limited warranty for a period of ninety (90) days from the date of installation by Better Water LLC of the equipment.
d. After such ninety (90) day period, buyer shall be responsible for any labor or service charge for the removal and/or replacement of any defective parts.
e. Buyer shall be responsible for all travel expenses and freight charges at all times.
f. Better Water LLC shall have no obligation to repair or replace any defective part if buyer fails to follow the procedure set forth in “HOW TO OBTAIN A REPLACEMENT PART UNDER LIMITED WARRANTY”.

IN NO EVENT SHALL THIS LIMITED WARRANTY BE CONSTRUED TO COVER, NOR SHALL BETTER WATER LLC BE LIABLE TO BUYER AS ANY OTHER PERSON FOR, ANY CONSEQUENTIAL, INCEDENTAL, ECONOMIC, DIRECT, INDIRECT, GENERAL OR SPECIAL DAMAGES, WHICH ARE HEREBY EXPRESSLY DISCLAIMED.

HOW TO OBTAIN A REPLACEMENT PART UNDER LIMITED WARRANTY

a. Buyer should contact the Customer Service or Technical Support Departments and request a Return Goods Authorization.
b. Described part(s) will be sent with a purchase order.
c. The returned part(s) will be returned to the factory for limited warranty consideration. If part(s) are not covered under the limited warranty, part(s) will be considered billable against the purchase order supplied.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY:

By way of example and not limitation, this limited warranty does not cover:

- Damage to or replacement of any ion exchange resin of filter media
- Labor or service charges for the removal and/or replacement of any defective parts after the ninety (90) day period from the date of installation or sale by Better Water LLC
- Freight charges and travel expenses
- Damage from inadequate or defective wiring, improper voltage, improper connections or electrical service, inadequate or defective plumbing, water supply, or water pressure, or in violation of applicable building, plumbing or electrical codes, laws, ordinances or regulations.
- Damage from improper installation or operation, including but not limited to, abuse, accident, neglect, improper maintenance, freezing and fires, or abnormal use.
- Damage caused by contaminants in Buyer's water supply, including hardness, chlorine, chloramines, sulfur, bacterial iron, tannin, algae, oil, organic matter or other unusual substances, if special equipment has not been installed by Better Water LLC to remove such contaminants
- Damage to or caused by filters/membranes or other replacement parts not purchased from Better Water LLC or damage caused by modification, alteration, repair or service of the equipment or any of its parts by anyone other than Better Water LLC or its expressly authorized representatives.

PRE-SHIP TEST DATA


BETTER WATER LLC
Smyrna, Tennessee