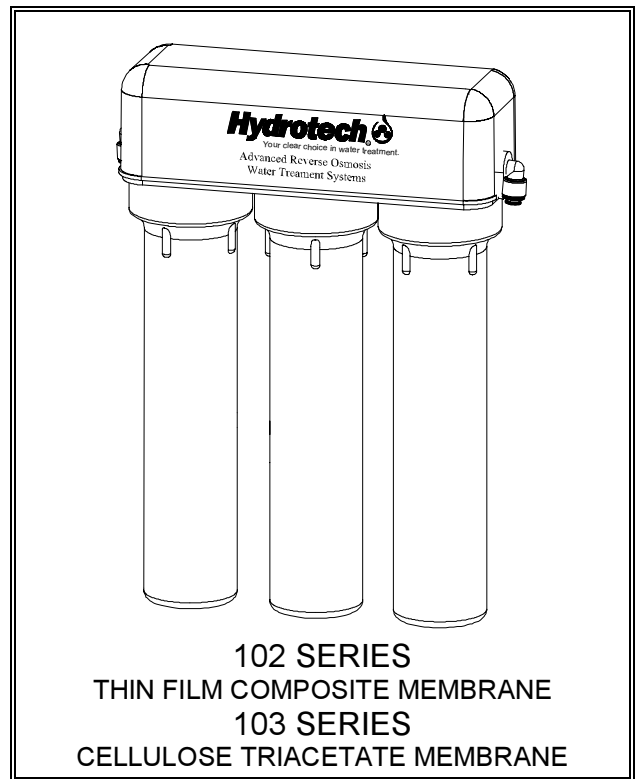
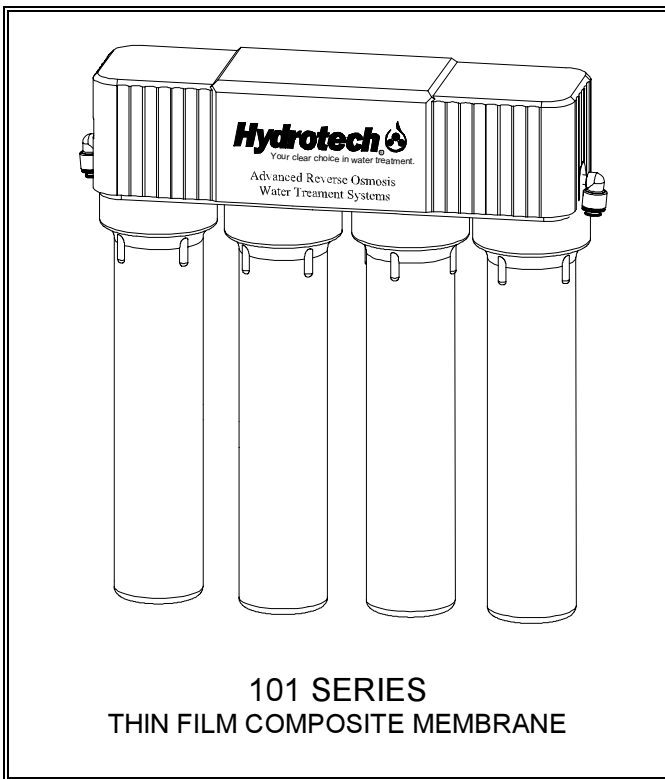


OWNER'S GUIDE



ADVANCED REVERSE OSMOSIS WATER TREATMENT SYSTEMS



INTRODUCTION

SYSTEM CONFIGURATIONS

SYSTEM UNITARY MANIFOLD AND FILTER CARTRIDGES						
Model	Vessels	Sediment Filter	Pre-Filter	Membrane	Post-Filter	Output [†]
101 Series	4	String Wound Polypropylene	Activated Carbon	Thin Film Composite	Activated Carbon	9, 15, 25, 35, 45
102 Series [◊]	3	String Wound Polypropylene	None	Thin Film Composite	Activated Carbon	9, 15, 25, 35, 45
103 Series	3	String Wound Polypropylene	None	Cellulose Triacetate	Activated Carbon	9, 15

[†] Manufacturer's Reference Designation Only. Refer to Production and Recovery Rates table for certified output production rates.

[◊] This system is not available in California.

MODEL NUMBERS

TABLE 1

GUIDE IS APPLICABLE TO HYDROTECH [®] REVERSE OSMOSIS DRINKING WATER TREATMENT SYSTEMS AS SPECIFIED IN THIS TABLE Select Codes: Model, Output, NSF, and Monitor. Assemble Respective Codes in Sequence.													
Model	4 Vessel TFC					3 Vessel TFC					3 Vessel CTA		
Model Code	101					102					103		
Output Designation	9	15	25	35	45	9	15	25	35	45	9	15	
Output Code	3	4	5	6	7	3	4	5	6	7	3	4	
Manufacturer's Code	0		1			0					0	1	
Monitor	Pushbutton Smartap [®]		Faucet Smartap [®]			Pushbutton Smartap [®]		Faucet Smartap [®]			Pushbutton Smartap [®]		Faucet Smartap [®]
Monitor Code	01		02			01		02			01		02

Example: 4 vessel, 25 GPD, NSF Listed, Faucet Smartap[®] is Model Number 1015102

*Chrome Faucet only available on systems not listed with NSF.

PRODUCTION AND RECOVERY RATES – 101 AND 103 SERIES

System Conforms to NSF/ANSI 58 for Specific Performance Claims as Verified and Substantiated by Test Data.							
Model	1013	1014	1015	1016	1017	1033	1034
System Output	19 Liters/day (5 gal/day)	28 Liters/day (7.3 gal/day)	29 Liters/day (7.5 gal/day)	34 Liters/day (9 gal/day)	45 Liters/day (12 gal/day)	15.1 Liters/day (4 gal/day)	29.5 Liters/day (7.6 gal/day)
Efficiency Rating ¹	16%	11%	8.9%	8.9%	8.5%	12%	20%
Recovery Rating ²	34%	25%	21%	24%	24%	26%	34%

1. Efficiency Rating means the percentage of influent to the system is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.

2. Recovery Rating means the percentage of influent to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed.

Definition: Rating of 25% means that 25% of the influent water is delivered as permeate and 75% is used to rinse the membrane and sent to drain.

Example: For every 37.8 L/day (10 gal/day) entering the system, 9.45 L/day (2.5 gal/day) is delivered to user and 28.35 L/day (7.5 gal/day) goes to drain.

INTRODUCTION

OPTIONS AND ACCESSORIES

METAL OR POLYMER FAUCETS	PRESSURIZED PRODUCT WATER STORAGE TANKS
The product water faucets are available in Chrome-Plated Brass (EPA and Proposition 65 Compliant), Polished Stainless Steel, or a Chrome-Plated molded Polymer with black accents. Units are available with or without Light Bar.	Product Water Storage Tanks are available in Steel, Polypropylene, or Fiber-Reinforced Resin with nominal capacities of 7.8L /2 gal to 38.9L /10.3 gal. Tank Assemblies include shut-off valve and quick connect fittings.
FAUCET ACTUATED SMARTAP® MONITOR	BOOSTER PUMP
Indicator lights appearing in a Light Bar report system status. Light Bar is located at faucet base (Chrome or Stainless Steel) or integrated into faucet body front cover (Polymer). It connects to electronics inside RO Module by a length of phone cord routed to terminal on manifold cover.	A booster pump may be used if system pressure is below 242 kPa (35 psi). Pump should be placed near RO Module and installed in feed water line just before it enters Module. Power supplies are available in a variety of voltages.

**CONTACT YOUR HYDROTECH DEALER TO PURCHASE REPLACEMENT PARTS AND ACCESSORIES.
TO LOCATE YOUR LOCAL DEALER, CALL HYDROTECH**

IN THE UNITED STATES 800.354.7867

IN CANADA 877.299.5999

CONDITIONS FOR USE

103 SERIES WITH CELLULOSE TRIACETATE MEMBRANE

Source Water Supply Profile		Chemical Parameters	Max mg/L
Community/Private	Chlorinated	Hardness (CaCO ₃)	<350
Feed Water Pressure ¹	242-690 kPa (35-100 psig)	Iron (Fe)	<0.1
Temperature	4°-38° C (40°-100° F)	Manganese (Mn)	<0.05
pH Range	4.0 - 8.0	Hydrogen Sulfide (H ₂ S)	0.00
Maximum TDS Level	1500 mg/L	Residual Chlorine (Cl ₂)	0.01-1.0
Turbidity	<1.0 NTU [#]	# Nephelometric Turbidity Unit.	
Maximum SDI [§]	<4.0	§ Silt Density Index: Value stated in SDI units.	

NOTE: 1. PRESSURE REGULATOR IS RECOMMENDED FOR FEED WATER PRESSURES EXCEEDING 552 kPa (80 psig).

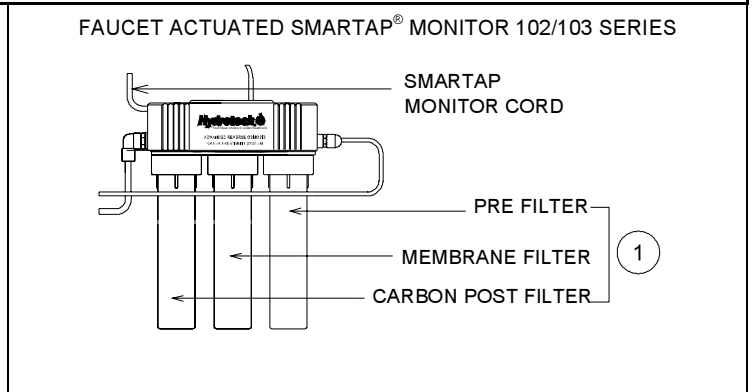
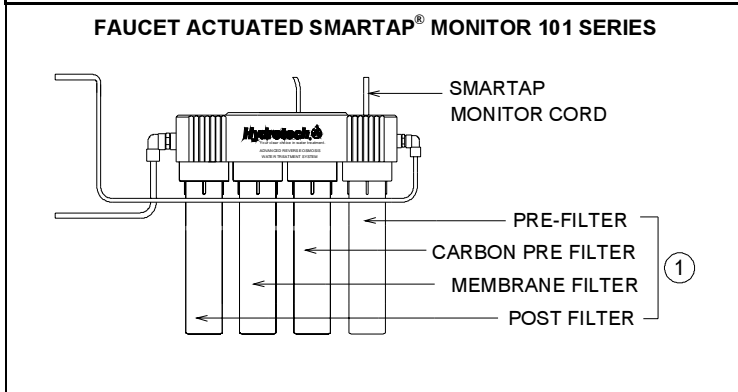
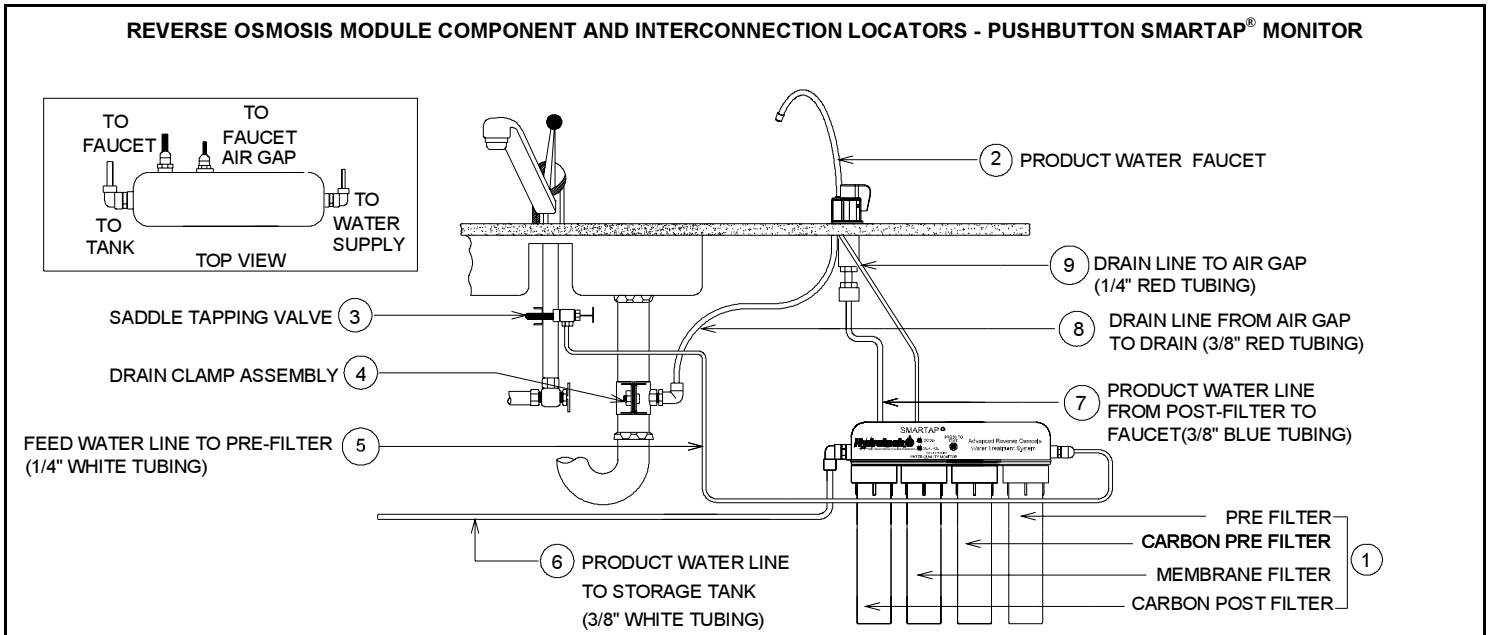
CONDITIONS FOR USE

101 AND 102 SERIES WITH THIN FILM COMPOSITE MEMBRANE

Source Water Supply Profile		Chemical Parameters	Max mg/L
Community/Private	Chlorinated/Non-Chlorinated	Hardness (CaCO ₃)	<350
Feed Water Pressure ¹	242-690 kPa (35-100 psig)	Iron (Fe)	<0.1
Temperature	4°-38° C (40°-100° F)	Manganese (Mn)	<0.05
pH Range	3.0 - 11.0	Hydrogen Sulfide (H ₂ S)	0.00
Maximum TDS Level	2000 mg/L	Residual Chlorine (Cl ₂)	<2.0
Turbidity	<1.0 NTU [#]	# Nephelometric Turbidity Unit.	
Maximum SDI [§]	<4.0	§ Silt Density Index: Value stated in SDI units.	

NOTE: 1. PRESSURE REGULATOR IS RECOMMENDED FOR FEED WATER PRESSURES EXCEEDING 552 kPa (80 psig).

INTRODUCTION



REVERSE OSMOSIS SYSTEM		
Item	Description	Part No.
1	Pushbutton Smartap® Water Quality Monitor Faucet Actuated Smartap® Water Quality Monitor	Pg. I, Table 1 Pg. I, Table 1
2	Product Water Faucet, Chrome or Stainless Steel Product Water Faucet, Polymer Chrome/Black	Pg. 9, Fig. 9 Pg. 11, Fig. 11

PRODUCT WATER STORAGE		
Item	Description	Part No.
n/s**	Product Water Storage Tank Assembly	Pg. 14, Fig. 14

SUPPORT LITERATURE		
Item	Description	Part No.
n/s**	Owner's Guide, 101, 102, and 103 Series	36101005

INSTALLATION KIT		
Item	Description	Part No.
	Complete Kit, Air Gap	42902004
3	Supply Valve Assembly, Saddle-Tapping	34900001
4	Drain Clamp Assembly, Saddle Clamp	42000001
5	Tubing, 1/4" x 54" White	20300014
6	Tubing, 3/8" x 60" White	20300012
7	Tubing, 3/8" x 60" Blue	20300013
8	Tubing, 3/8" x 60" Red	20300018
9	Tubing, 1/4" x 48" Red	20300015
n/s**	Screw, Mounting Bracket (2 each)	32701002

** not shown

Figure 1 Component and Interconnection Locators, 101, 102, and 103 Series

INSTALLATION REQUIREMENTS

READ THIS ENTIRE INSTALLATION AND SERVICE GUIDE BEFORE BEGINNING INSTALLATION

Hydrotech® 101 and 103 Series Reverse Osmosis (RO) Drinking Water Treatment Systems have been designed for ease of installation and serviceability. They are constructed with the finest materials available. Using these instructions and paying close attention to parameters outlined within "CONDITIONS FOR USE" detailed on Page I will ensure a successful installation.

All systems must be installed in accordance with applicable city, state, and local plumbing codes. To insure a system continues to operate at its optimum level, it is necessary to have a routine maintenance and replacement schedule (Page 16). The frequency at which filters must be changed will depend on quality of feed water supply and level of system usage.

Hydrotech® RO systems contain a replaceable treatment component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications, as defined by Hydrotech®, to assure the same efficiency and contaminant reduction performance. Product water shall be tested periodically to verify the system is performing properly. Operator performs test using the Smartap® Water Quality Monitor.

PREPARATION

1. Check that all appropriate components are packed with your system (Figure 1). Refer to applicable Component Parts Breakdown (Figures 9, 11, 12, 13, or 14) for a complete list of parts.
2. Determine locations for RO component installation. Two requirements for consideration are: access to cold water supply line and household sink drainpipe. Specific requirements are detailed in Table 2.

<p>PRODUCT WATER FAUCET</p> <p>Faucet may be installed in any convenient location. Make sure underside of location is free of obstructions</p>	<p>REVERSE OSMOSIS MODULE*</p> <p>Module may be installed under sink or in any convenient location within 15 feet of source water supply and faucet.</p>
<p>STORAGE TANK</p> <p>Tank may be placed in any space within 15 feet of faucet, generally under kitchen sink or in an adjacent unused cabinet. Tubing length between components should be kept to a minimum, avoiding sharp bends or kinks.</p>	
<p>* DO NOT PLACE MODULE WHERE IT WILL BE EXPOSED TO FREEZING AND/OR DIRECT SUNLIGHT. Mount Module on side of cabinet using bracket (attached to Module) and two screws provided in the Installation Kit. HOLD THE MODULE BY THE FILTER HOUSINGS WHEN PICKING UP OR CARRYING UNIT.</p>	

Table 2 Component Location Requirements

NOTE

THIS DRINKING WATER SYSTEM IS FOR USE ON POTABLE WATER SUPPLIES ONLY. SOURCE WATER EXCEEDING CHEMICAL PARAMETERS REQUIRES PRE-TREATMENT.

COMMONWEALTH OF MASSACHUSETTS PLUMBING CODES 248 CMR SHALL BE ADHERED TO. CONSULT WITH YOUR LICENSED PLUMBER FOR INSTALLATION OF THIS SYSTEM.

CAUTION

DO NOT USE WITH WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM.

IF SIGNIFICANT INLET WATER PRESSURE DIFFERENTIALS OCCUR, PRESSURE REGULATOR MUST BE USED.

SMARTAP® WATER QUALITY MONITOR

Hydrotech® 101, 102, and 103 Series Reverse Osmosis Systems incorporate a proven performance indicator. Our *patented* Smartap® Water Quality Monitor uses dual probe LOGIC PULSE MEMORY technology to accurately indicate membrane performance. A split-second power pulse compares feed water Total Dissolved Solids (TDS) level with that of the product water. Then, by reversing the polarity of the electronic pulse, the probes are cleaned and kept free of chemical plating. A nine-volt alkaline battery provides power to the Monitor. For optimum monitor performance, the battery should be replaced each time system is sanitized.

NOTE: Monitor Troubleshooting Indicators and Common Solutions are shown in Table 3 on Page 19.

THE SMARTAP® WATER QUALITY MONITOR IS AVAILABLE IN TWO MODELS

Pushbutton Actuated Smartap®

Pressing a test button located on the manifold cover activates monitor. When button is pressed, and momentarily held down, monitor reports membrane status by illuminating a light located next to test button. A green light means system is operating normally. A yellow light indicates system needs servicing (membrane may be depleted or fouled). While the button may be pressed at any time, the most accurate readings are obtained when the system is making water.

Faucet Actuated Smartap®

Monitor is activated by opening product water faucet or extra point-of-use device. When monitor is activated, it reports system status by illuminating a light appearing in a light bar located at faucet base (Chrome or Stainless Steel faucet) or integrated into faucet body front cover (Polymer faucet). A green light means system is operating normally. A yellow light means membrane may be depleted or fouled. An orange light means a trained technician should service the system. To prolong battery life, the monitor indicator lights self-extinguish after a few seconds even if water is being dispensed.

INTER-COMPONENT CONNECTIONS

Connections between cold water supply line, RO Module, storage tank, product water faucet, and drain line are accomplished using plastic tubing and push-together quick-connect type fittings.

PLASTIC TUBING

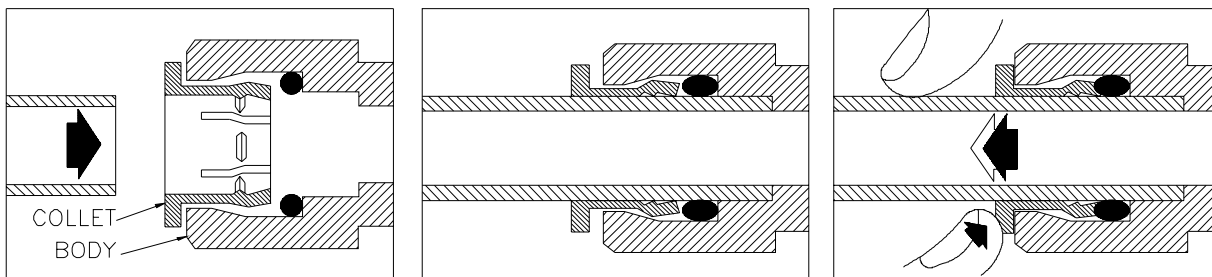
1. Cut tube ends square and straight. Do not deform tube (i.e., cause tube to compress its diameter so it is no longer round).
2. Make sure outer surface of tube is clear of marks or scratches for a length equal to twice tube diameter. This allows "O" ring to seat properly against tube.
3. Avoid sharp changes in direction when routing tubing. Sharp turns cause tubing to flex and deform, which reduces its flow capacity and may increase lateral stress on the fittings, causing leakage.

QUICK-CONNECT FITTINGS

Fittings consist of two parts: a Body and a colored Collet. Collet color corresponds to tubing color to be used at that connection (Figure 2.A.).

1. To install a tube, push it through Collet until it seats firmly at bottom of fitting (Figure 2.A and 2.B.).
2. To remove a tube, push and hold Collet against Body while pulling tube out (Figure 2.C.).

NOTE: Systems are shipped with a plug in each fitting (prevents leakage of sanitizing fluid). Remove a plug in same manner as a tube.



A. Push tube through Collet into Body B. Tube must seat firmly at bottom of fitting C. Push Collet against Body to release tube

Figure 2 How to Use Quick-Connect Fittings

SADDLE-TAPPING VALVE INSTALLATION ON COPPER TUBE

NOTE: The saddle-tapping valve is approved for use on copper tubing from 3/8" to 1 1/4".

NOTE: State and local plumbing codes may prohibit use of saddle-tapping valves. An Inlet Adapter Valve Assembly (P/N 42500004) is available as an alternate installation (See Page 5).

1. **CAUTION:** If no shut off valve is installed under sink, close main water valve during this installation.

Locate shut off valves on water lines under sink. To identify hot supply pipe and cold supply pipe, turn both faucets on and let water run. As water flows, hot water pipe becomes noticeably warmer.

NOTE: All instructions refer to components shown in Figure 3.A. unless otherwise noted.

2. **CAUTION:** Do not install feed water assembly on hot water line.

Turn off cold water supply by closing shut off valve. Drain line by opening sink faucet. Some mixing type faucets may require hot water supply be shut off as well.

3. **CAUTION:** Do not turn valve handle before or while installing saddle-tapping valve. Make sure piercing lance does not protrude beyond rubber gasket before installing valve.

Assemble saddle-tapping valve on tube.

- a. Hold back plate in place against the tube.
 - 3/8" tubing, use bracket with side projections.
 - 1/2" or larger tubing, use "V" side of bracket (See Figure 3.B).
- b. Hold valve saddle against tubing in a position directly opposite back plate.
- c. Tighten screws enough so valve saddle and back plate are held securely against tube.
- d. Rotate assembly so tubing connection is aligned toward RO Module inlet port.
- e. Tighten screws evenly (brackets must be parallel). Tighten each screw firmly. Do not crush tube.

4. Connect source water feed tubing to valve body using compression fitting.
 - a. Slide nut and sleeve onto tubing (in that order).
 - b. Install insert into plastic tubing.
 - c. Install tube with insert and sleeve into valve body.
 - d. Thread compression nut onto valve body, tighten.
5. Connect tubing from saddle-tapping valve to RO Module inlet elbow (Item 13 on Page 12, Figure 12 or Page 13, Figure 13).
6. Turn saddle-tapping valve handle clockwise until it is firmly seated and piercing lance is fully extended.
7. **CAUTION:** Supply line is pierced and valve is closed. Do not open valve until system is activated (Page 15).

Turn on cold water supply. Check saddle-tapping valve installation for leaks. Allow water to run from faucet for a few minutes to clear any debris in the line caused by installation.

NOTE: If flow from sink faucet is reduced, clean faucet aerator.

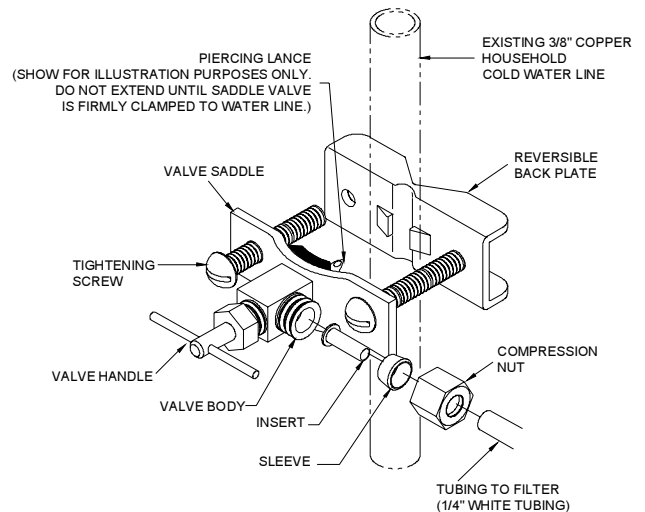


Figure 3A Saddle-Tapping Valve Assembly P/N 34900001 installed on 3/8" to 1 1/4" Copper Tubing.

SADDLE-TAPPING VALVE INSTALLATION ON STEEL OR BRASS PIPE

NOTE: The Saddle-Tapping valve is approved for use on steel or brass pipe from 1/8" to 1".

NOTE: State and local plumbing codes may prohibit use of saddle-tapping valves. An Inlet Adapter Valve Assembly (P/N 42500004) is available as an alternate installation (See Page 5).

1. **CAUTION:** If no shut off valve is installed under sink, close main water valve during this installation.

CAUTION: Do not install feed water assembly on hot water line.

Locate and shut off source water supply line (see Page 3, Steps 1 and 2).

NOTE: All instructions refer to components shown in Figure 3.B. unless otherwise noted.

2. **WARNING: USE A BATTERY POWERED HAND DRILL TO AVOID SHOCK HAZARD.**

CAUTION: Place a container or towel below shut-off valve to catch any water remaining in pipe.

Using a clean drill bit, drill a 3/16" hole in pipe. Hole must be located so that tubing connection will be oriented toward the RO Module input port.

3. Assemble saddle-tapping valve on pipe.
 - a. Turn valve handle to expose lance beyond rubber gasket no more than 3/16".
 - b. Place valve saddle against pipe. Make sure lance fits into hole.
 - c. Hold back plate against pipe in a position directly opposite valve saddle.
 - d. Tighten screws evenly (brackets must be parallel). Tighten each screw firmly.
4. Connect source water feed tubing to valve body (see Page 3, Step 4).

5. Connect source water feed tubing from saddle-tapping valve to RO Module inlet elbow (Item 13 on Page 12, Figure 12 or Page 13, Figure 13).
6. Turn saddle-tapping valve handle clockwise until it is firmly seated and piercing lance is fully extended.
7. **CAUTION:** Do not open valve until system is activated (Page 15).

Turn on cold water supply. Check saddle-tapping valve installation for leaks. Allow water to run from faucet for a few minutes to clear any debris in the line caused by installation.

NOTE: If flow from sink faucet is reduced, clean faucet aerator.

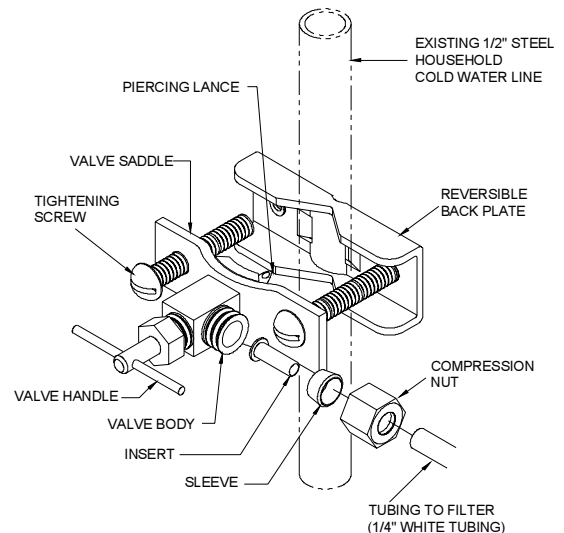


Figure 3B Saddle-Tapping Valve Assembly P/N 34900001 installed on 1/8" to 1" NPT Steel or Brass Pipe.

ADDITIONAL POINT OF USE CONNECTION

NOTE: Ice makers typically use 1/4" tubing as feed line. Use a reducing union (P/N 33503407) for this connection.

NOTE: Reduce the 3/8" line to 1/4" as close as possible to the additional point-of-use device to minimize flow loss.

1. To connect an additional point of use (icemaker, extra faucet in wet bar and/or another use for treated water), place a "tee" connector (P/N 33503703) in 3/8" blue line between faucet and back of RO Module.
2. Connect "tee" to point-of-use with 3/8" blue tubing (P/N 60602001). Connect tubing to point-of-use. Connector requirements are based on type of delivery device i.e., a typical icemaker uses 3/8" x 1/4" reducing device (P/N 33503407).

INLET ADAPTER VALVE INSTALLATION

NOTE: This assembly is offered as an optional installation method. Make sure it is approved for use under State and local plumbing codes before ordering kit (P/N 42500004).

NOTE: Use this assembly on U.S.N.P.T.* pipe thread fittings only.

1. **CAUTION:** If no shut off valve is installed under sink, close main water valve during this installation.

Locate shut off valves on water lines under sink. To identify hot supply pipe and cold supply pipe, turn both faucets on and let water run. As water flows, hot water pipe becomes noticeably warmer.

2. **CAUTION:** do not install feed water assembly on hot water line.

Turn off cold water supply by closing shut off valve. Drain line by opening sink faucet. Some mixing type faucets may also require turning off hot water supply.

NOTE: All item callouts refer to Figure 4 unless noted otherwise.

3. **CAUTION:** Place container or towel below shut-off valve to catch any water remaining in pipe.

Disconnect cold water supply line to sink at inlet valve end of line.

4. Insert rubber washer (Item 1) into inlet adapter (Item 2) and install adapter onto supply valve. Align outlet hole (in side of adapter) toward location of RO Module.

5. Replace existing rubber grommet on cold water supply line with grommet supplied in kit (Item 3).

6. **CAUTION:** Use thread-sealing tape (P/N 35700002) on male threaded connections in Steps 4, 6, 7, and 8. Attach cold water supply line to inlet adapter.

7. Install ball valve (Item 4) into inlet adapter.

8. Install male connector (Item 5) into inlet ball valve.

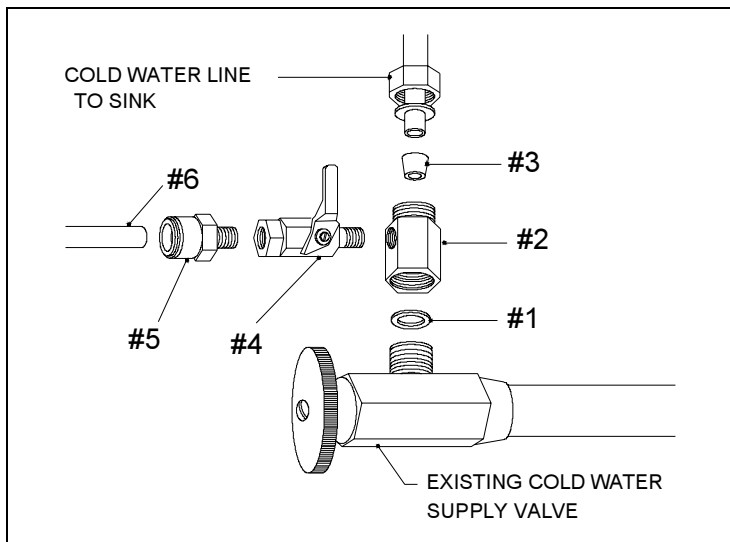
9. Install 1/4" white tubing (Item 6) from male connector to RO Module inlet elbow (Item 13 on Page 12, Figure 12 or Page 13, Figure 13).

10. Close inlet valve by turning handle so it is at a right angle (90°) to valve body.

11. **CAUTION:** Do not open valve until system is activated (Page 15).

Turn on cold water supply. Check installation for leaks. Allow water to run from faucet for a few minutes to clear any debris in the supply line caused by this installation.

NOTE: If flow from faucet is reduced, clean faucet aerator.



Item	Description	Part No.
<u>Inlet Assembly</u>		
1	Rubber Washer	33400002
2	Inlet Adapter 1/2" x 1/2" x 1/8"	33201001
3	Rubber Grommet	33400003
4	Inlet Ball Valve 1/8"	34900002
5	Male Connector 1/4" x 1/8" NPT*	33503301
<u>Component of Installation Kit</u>		
6	Tubing, 1/4" White	20300014

* United States National Pipe Thread

Figure 4 Inlet Adapter Assembly P/N 42500004 Installation and Parts Breakdown

DRAIN OUTLET ASSEMBLY INSTALLATION

NOTE: State and local plumbing codes may prohibit use of saddle-tapping drain connections.

NOTE: Location and orientation of drain outlet assembly is vital to system performance.

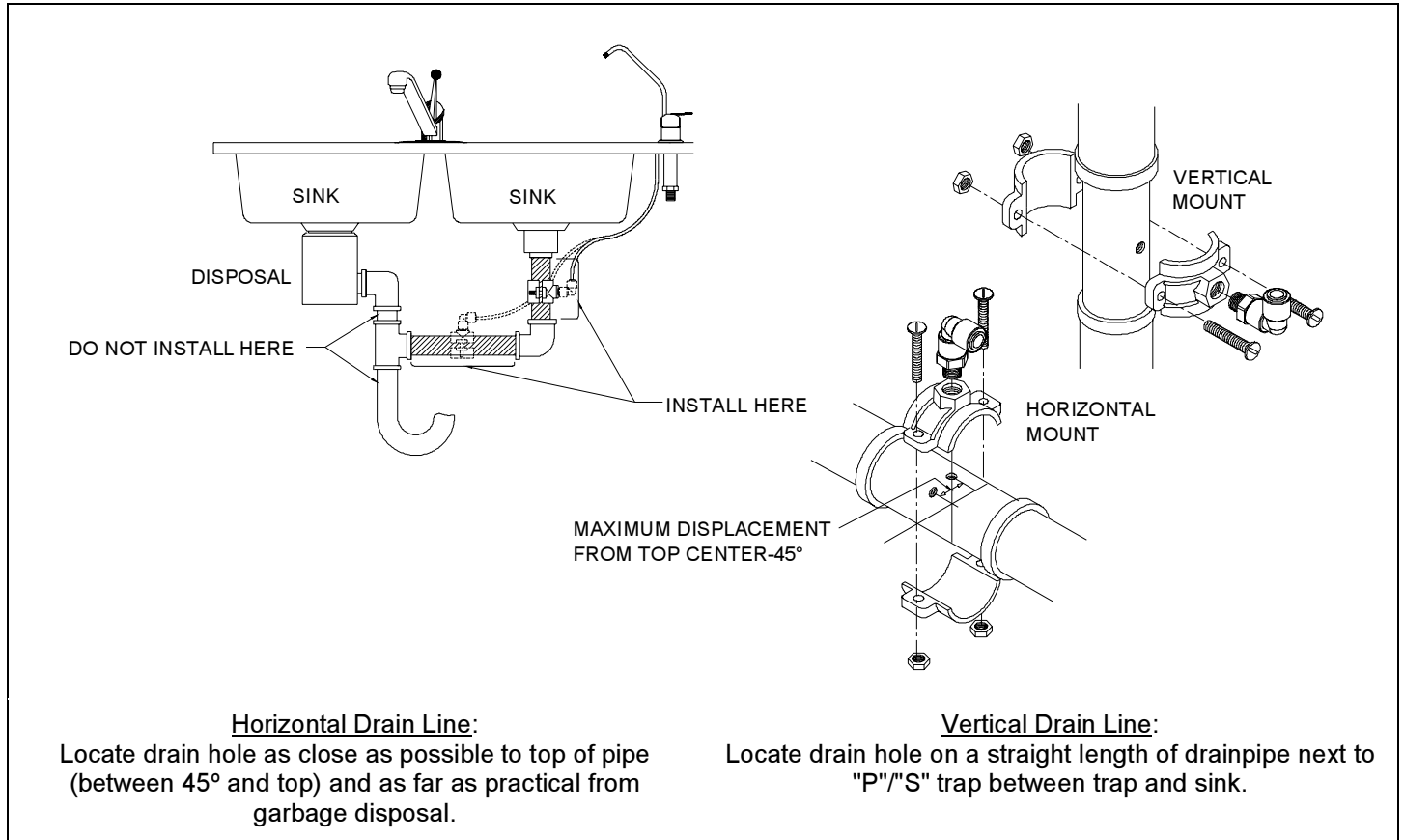
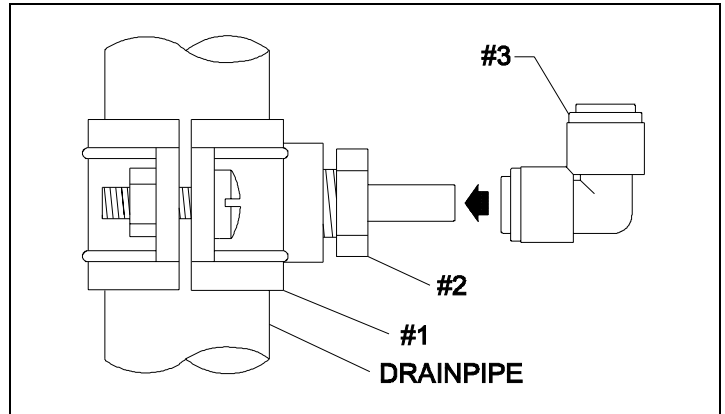


Figure 5 Drain Hole Location and Installation

1. Select a location for drain hole based on type of sink and orientation of drain line (Figure 5).

NOTE: Item callouts refer to Figure 6 unless noted otherwise.

2. Position drain outlet saddle (Item 1) on drainpipe. Allow adequate space for drilling operation.
3. Tighten saddle bolts evenly on both sides. Avoid over-tightening.
4. Using opening in drain outlet saddle as a guide, drill a 3/8" to 7/16" diameter hole in drainpipe. Clean any debris out of drain saddle connection.
5. Install drain saddle stem adaptor (Item 2) fitting into drain saddle. Use thread-sealing tape (P/N 35700002) to seal threads between stem adaptor and drain saddle.
6. Install union elbow (Item 3), onto stem adaptor by pushing either end of elbow firmly onto stem.



Item	Description	Part No.
1	Drain Saddle	42000002
2	Stem Adapter	33503101
3	3/8" Union Elbow	33503401

Figure 6 Drain Outlet Assembly

PRODUCT WATER FAUCET SITE PREPARATION

Refer to Faucet Installation Instructions (Pages 8 & 10) for site location and mounting hole specifications.

Primary considerations for site selection are convenience of use and an open area under sink.
Always check underside of selected location for obstructions.

PORCELAIN/ENAMEL OVER STEEL OR CAST IRON SINKS

1. **CAUTION:** A heavy duty, variable speed drill motor with a spring-loaded porcelain drill set (Figure 7.B.) is strongly recommended for this procedure.

CAUTION: The plastic sleeve supplied on pilot drill (Figure 7.A) is to be positioned on drill bit against drill chuck. This prevents chuck from contacting porcelain after pilot hole has been completed.

Using carbide tipped bit with plastic sleeve (Figure 7.A.), drill pilot hole completely through porcelain and metal underneath.

NOTE: Practice on discarded sinks to become familiar with operation of porcelain cutter kit.

2. **CAUTION:** Avoid high motor R.P.M. during initial penetration of porcelain, as high drill speed will cause excessive chipping.

Place spring-loaded porcelain saw (Figure 7.B.) into drill chuck. Make sure pilot guide is inserted tightly. Insert pilot guide into pilot hole. Push down gently on drill motor to apply light pressure to porcelain surface. Start drill motor turning as slowly as possible.

After initial cut has started, motor speed may be gradually increased. The cut may require three to four minutes to complete. Going faster could result in excessive chipping. Be sure a complete ring has been cut through porcelain to material underneath.

3. Place finish hole saw (Figure 7.C.) into drill chuck. Make sure pilot guide is inserted tightly. Insert pilot guide into pilot hole. Begin cut using a slow speed and light pressure until porcelain (inside ring cut in Step 2) has been penetrated to material underneath.
4. Remove saw from hole and clean all debris from porcelain surface. Re-insert saw into hole and cut through remaining material.
5. Installation hole is ready, install faucet.

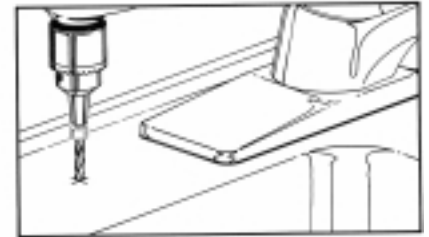
TILE COUNTER TOP

1. Follow procedures detailed in section labeled "Porcelain/Enamel Over Steel" (substitute "tile" for "Porcelain" in instructions).

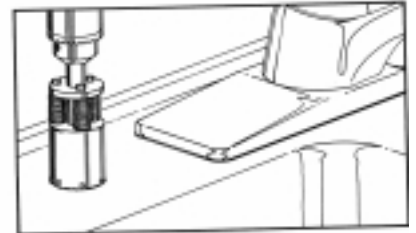
STAINLESS STEEL SINK

1. Use a center punch to make a small indentation to mark center of desired location.
2. Drill a pilot hole with a 1/8" metal drill bit, then enlarge hole with a 3/8" metal drill bit.
3. Complete hole size by using a 1 1/4" chassis punch available from your dealer (P/N 36201006).
4. Installation hole is ready, install faucet.

A. PILOT DRILL



B. SPRING LOADED PORCELAIN SAW



C. FINISH HOLE SAW

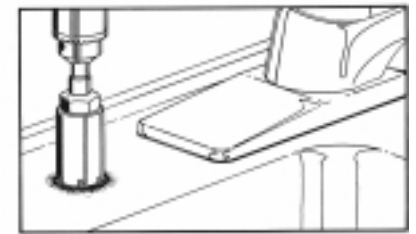


Figure 7 Porcelain Cutter Kit P/N 36201003

PRODUCT WATER FAUCET INSTALLATION - STAINLESS STEEL OR CHROME FAUCET

Install faucet on flat surface at least 2" in diameter. Unused 1 1/4" hole is ideal. Steps unique to a specific configuration are so noted. All other steps are common to either configuration.

New Faucet Installation

Refer to Faucet Site Preparation, Page 7.

Replacement Faucet Installation

Verify size of existing hole is 1 1/4".

NOTE: Item callouts refer to Page 9, Figure 9 unless noted otherwise. Part numbers for each callout are specified according to faucet type:

Chrome-Plated Faucets (brass faucet nipple):
Table A.

Stainless Steel Faucets (copper faucet nipple):
Tables B and C.

1. **Pushbutton Smartap®:** Verify faucet body, metal base washer, and rubber base washer are in place above sink (Items 1, 2, and 8).

Optional Faucet Smartap®: Verify faucet body, metal base washer, light bar base washer, light bar assembly, and washboard gasket are in place above sink (Items 1, 2, 9, 10, and 11).

2. Install 3/8" red tube on larger faucet barb. Install 1/4" red tube on smaller faucet barb.
3. **CAUTION:** Do not pinch, kink, or otherwise deform monitor cord. Align cord with cutout in plastic spacer.

Pushbutton Smartap®: Insert two red tubes into mounting hole and place faucet over hole.

Optional Faucet Smartap®: Insert two red tubes and monitor cord into mounting hole and place faucet over hole.

4. Install slotted washer, spacer, faucet washer, and nut as shown in figure 9 below sink and tighten nut (Items 7, 3, 6, and 5). Be sure to align faucet properly before tightening. Do not over tighten.
5. Install faucet connector (Item 4), packaged with faucet, onto faucet nipple. Do not over tighten. Install 3/8" blue tube into faucet connector.
6. **CAUTION:** Red 3/8" tube connecting product water faucet to drain saddle must run vertically (or as closely as possible) with no sharp bends or loops (See Page 6, Figure 5).

Connect loose ends of tubing as follows:

- a. 3/8" blue tubing to 3/8" swivel elbow located on rear of module.
- b. 1/4" red tubing to 1/4" swivel elbow located on rear of module.
- c. 3/8" red tubing to 3/8" swivel elbow on drain saddle.

7. **Optional Faucet Smartap®:** Connect monitor cord to telephone-style connector located on manifold cover (101 Series, Figure 8A; 102/103 Series Figure 8.B.).

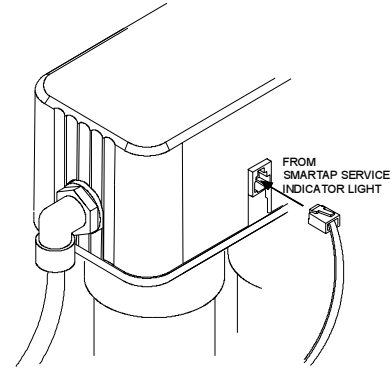


Figure 8.A. 101 Series Connecting Monitor cord to Manifold.

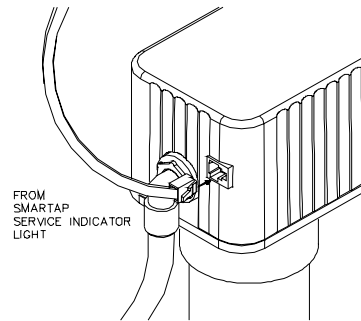


Figure 8.B. 102/103 Series Connecting Monitor cord to Manifold.

Storage Tank Connection

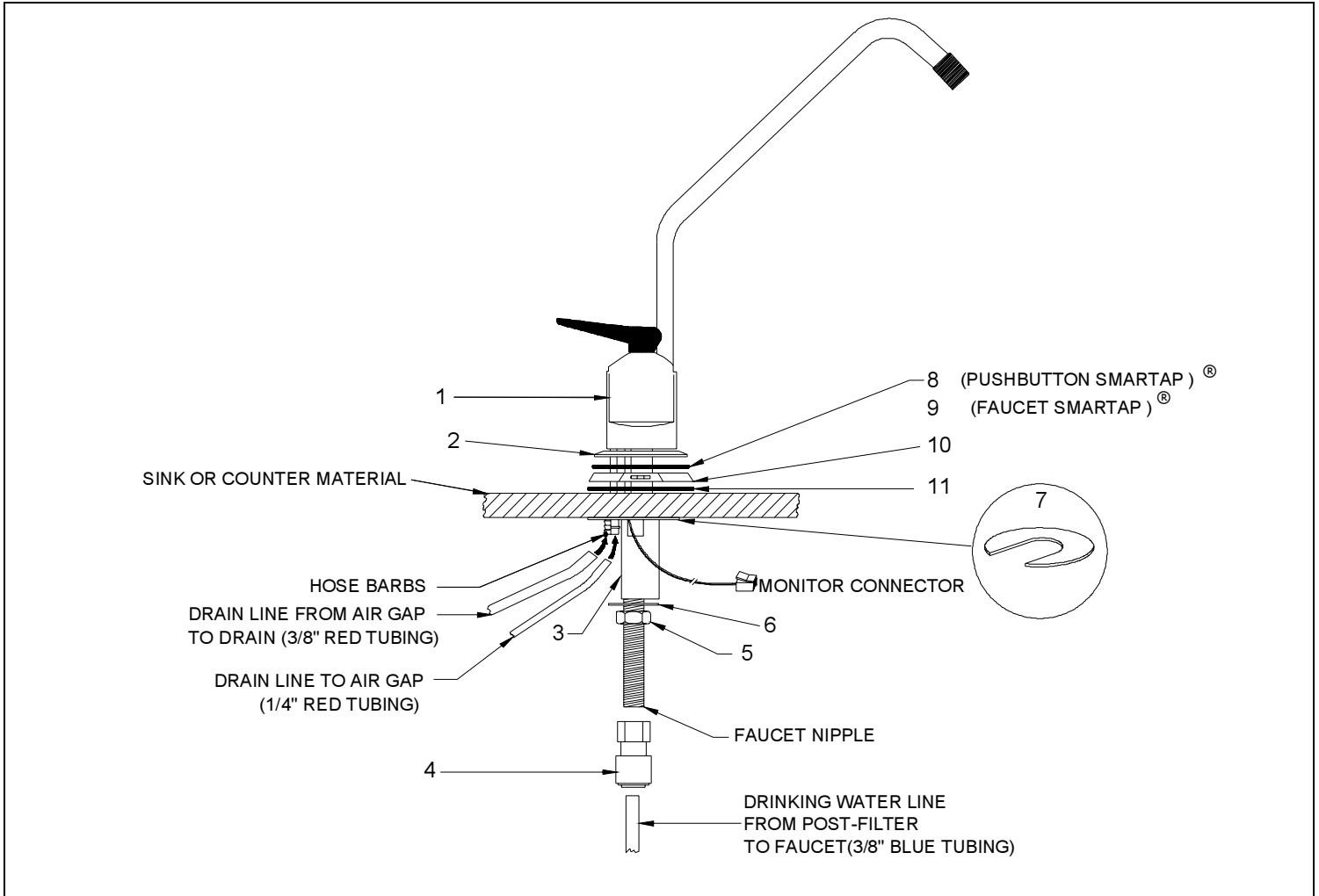
NOTE: The following instructions refer to Page 14, Figure 14.

NOTE: Refer to Page 2, Inter-Component Connections for instructions on how to install tubing.

1. **CAUTION:** White 3/8" tube connecting module to the product water storage tank must run with no sharp bends or loops.

Determine length of white 3/8" tube required to connect the module to the tank. If the tube is too long, cut it length. If it is too short, add another length of tubing.

2. Connect 3/8" white tube to 3/8" adapter fitting located on the storage tank.
3. The basic installation is complete and system is ready for activation (see Page 15).



A	Chrome-Plated Metal Faucet	Two Options
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Item	Description	Part No.
A	Chrome-Plated Metal Faucet (Faucet not available in California)	40301101
A	Chrome-Plated Metal Faucet (EPA and Proposition 65 Compliant)	40301001
1	Body, Faucet - Chrome	
2	Washer, Faucet Base - Chrome	
3	Spacer, Plastic	
4	Connector, Faucet - 3/8" x 7/16"	
5	Nut, Faucet	
6	Washer, Faucet	
7	Washer, Slotted (Slot Shape may vary)	
8	Washer, Rubber - Faucet Base	

B + C	Stainless Steel Faucet with Light Bar	11701002
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Item	Description	Part No.
B	Stainless Steel Faucet	40301004
1	Body, Faucet - Stainless Steel	
2	Washer, Faucet Base - Stainless Steel	
3	Spacer, Plastic (without cutout)	
4	Connector, Faucet - 3/8" x 7/16"	
5	Nut, Faucet	
6	Washer, Faucet	
7	Washer, Slotted	
8	Washer, Rubber - Faucet Base	

C	Light Bar Assembly 3 LED	41200001
3	Spacer Plastic (with cutout)	
9	Washer, Faucet Base Lt. Bar (replaces Item 8)	
10	Light Bar - 3 Indicator Lights	
11	Gasket, Washboard F/M	

Figure 9 Parts Breakdown, Metal Air Gap Product Water Faucet Assemblies, Chrome, or Stainless Steel

PRODUCT WATER FAUCET INSTALLATION - POLYMER FAUCET

Install on flat surface at least 2 7/16" in diameter. Unused 1 1/4"- 1 7/16" opening is ideal.

New Faucet Installation

Refer to Faucet Site Preparation, Page 7.

Replacement Faucet Installation

Verify size of existing hole. If hole measures 1 7/16", Faucet may be installed without changes. If hole measures 1 1/4", remove two locator tabs (Figure 10) prior to installation by breaking them off at faucet base.

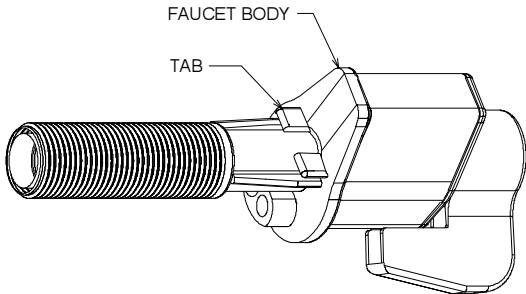


Figure 10 Faucet Locator Tabs and Air Gap.

1. Remove mounting nut and "U" bracket from faucet.
2. Install 3/8" blue tube into blue collet in faucet base.
3. **CAUTION:** Do not pinch, kink, pull, or otherwise deform monitor cord.

Hydotap® Logo (without Light Bar): Insert three tubes into mounting hole and place faucet over hole. Align faucet body with narrow face forward.

Smartap® Logo (with Light Bar): Insert three tubes and monitor cord into mounting hole and place faucet over hole. Align faucet body with light bar forward.

4. Install "U" bracket and mounting nut below sink. Tighten mounting nut **by hand** so that faucet does not move. **Do not over tighten.**
- NOTE:** Faucet is packaged for right-hand operation. For left-hand operation, realign handle by completing Step 5.
- NOTE:** Item callouts in Step 5 refer to Page 11, Figure 11.
5. Align faucet knob for left-hand operation.
 - a. Rotate knob to rear of faucet (closed position).
 - b. Remove knob cover (Item 1) using a thin, flat tool to pry cover from knob.

- c. Remove knob attachment screw (Item 2) using a Phillips-head screwdriver.
- d. Remove knob (Item 3) by pulling it (by hand) straight up. Rotate handle counterclockwise 90°, and re-install knob.
- e. Install knob attachment screw. Tighten screw until free movement (i.e., rocking) is eliminated.
- f. Snap knob cover into place.

6. Install spout into faucet body. Lubricate "O" ring with FDA approved Silicone Lubricant. Align spout with faucet outlet, gently push spout to bottom of outlet.
7. **CAUTION:** Red 3/8" tube connecting faucet to drain connection must run vertically (or as closely as possible) with no sharp bends or loops (See Page 6, Figure 5).

Connect loose ends of tubing as follows:

- a. 3/8" blue tubing to 3/8" swivel elbow located on rear of module.
 - b. 1/4" red tubing to 1/4" swivel elbow located on rear of module.
 - c. 3/8" red tubing to drain connection.
8. **Light Bar:** Connect monitor cord to module. Insert cord into a telephone-style connector located on module cover (See Page 8, Figure 8.A. for 101 Series, Figure 8.B. for 102/103 Series).

Storage Tank Connection

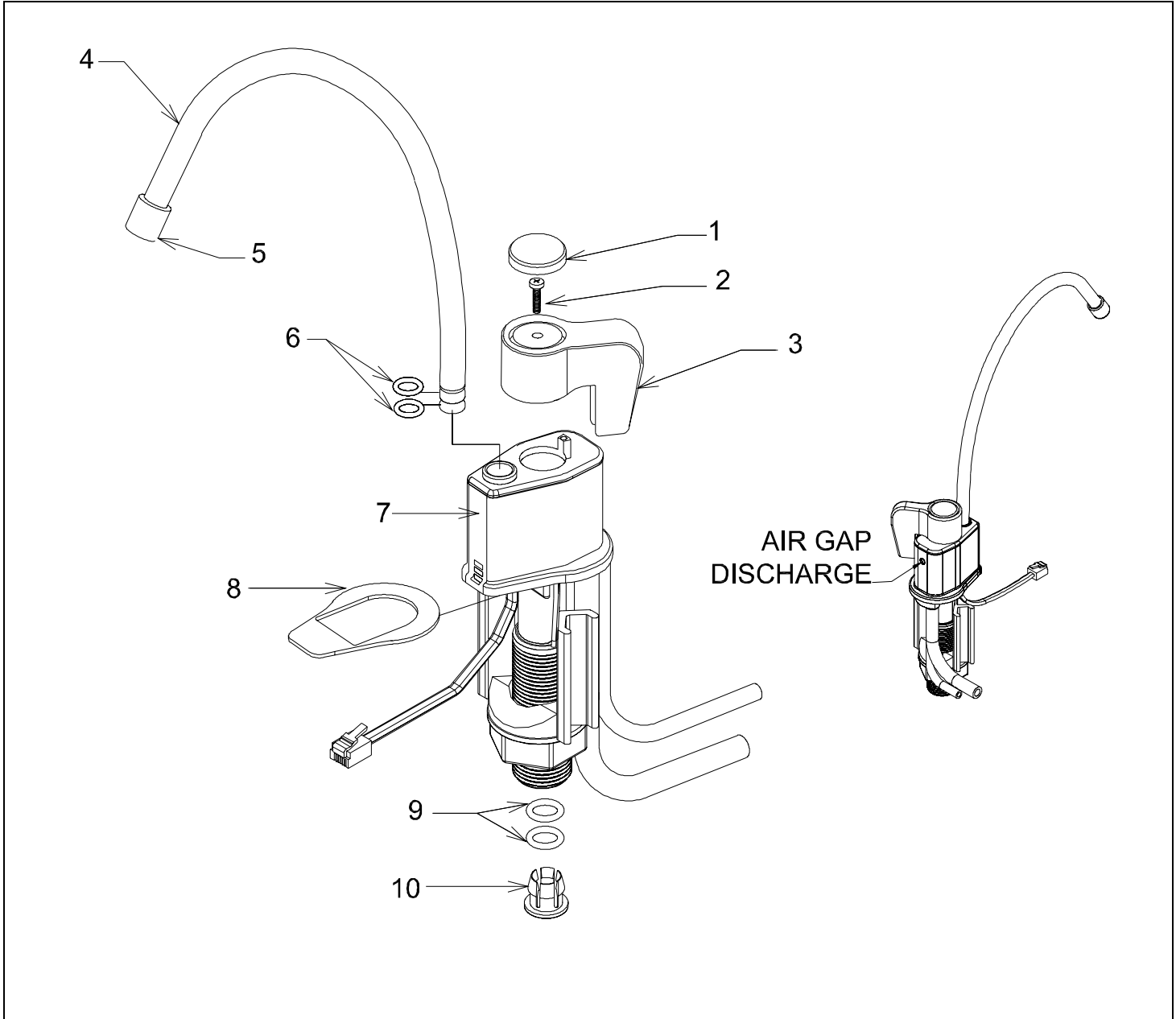
NOTE: The following instructions refer to Page 14, Figure 14.

NOTE: Refer to Page 2, Inter-Component Connections for instructions on how to install tubing.

1. **CAUTION:** White 3/8" tube connecting module to the product water storage tank must run with no sharp bends or loops.

Determine length of white 3/8" tube required to connect the module to the tank. If the tube is too long, cut it length. If it is too short, add another length of tubing.
2. Connect 3/8" white tube to 3/8" adapter fitting located on the storage tank.
3. The basic installation is complete and system is ready for activation (see Page 15).

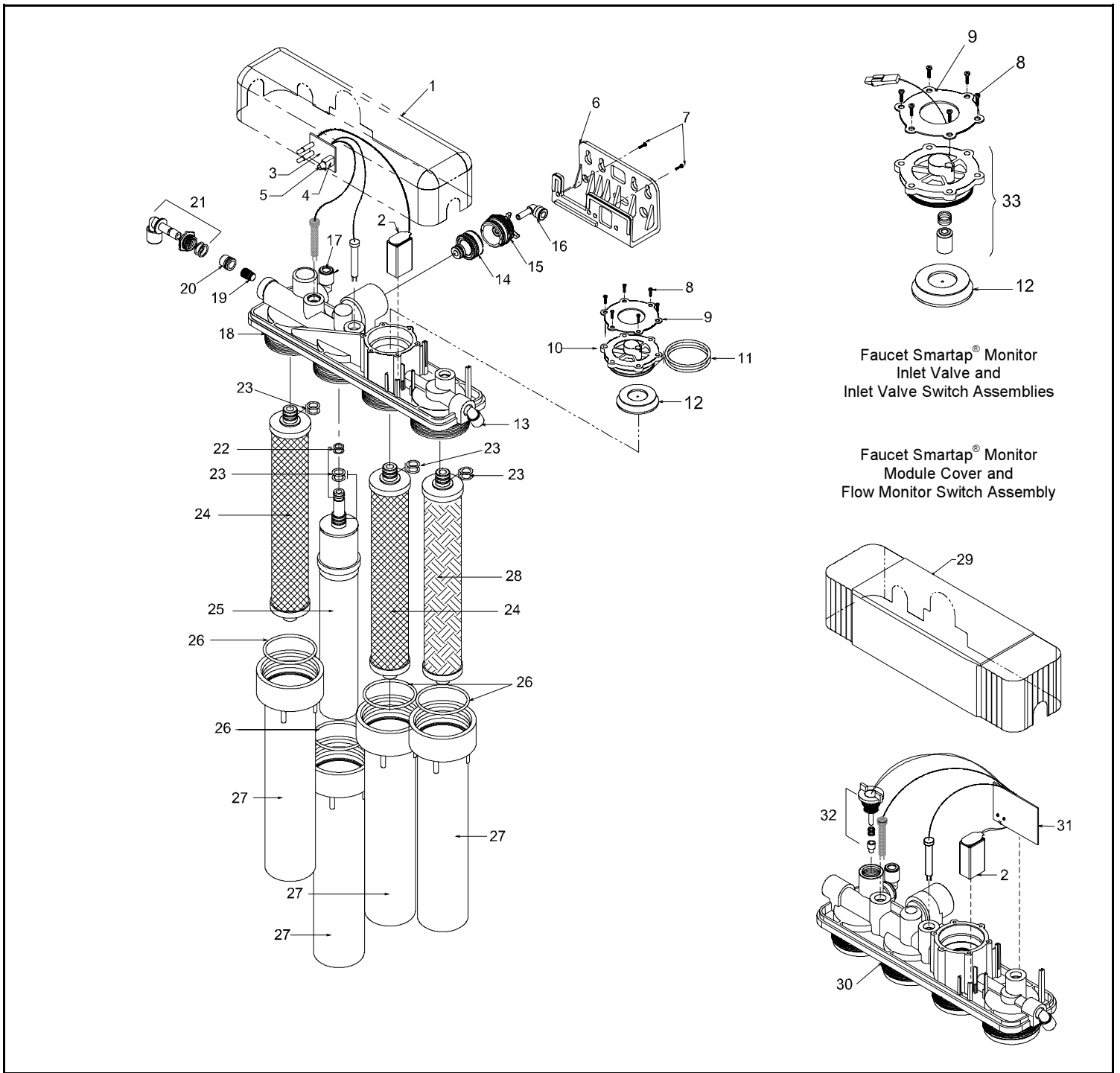
CLEAN FAUCET SURFACE USING DISHWASHING DETERGENT ONLY. DO NOT USE ABRASIVES OR SOLVENTS.



Item	Description	Part No.
1	Cover, Knob - Chrome - Plated	35800502
2	Screw, Knob	32701021
3	Knob, Faucet - Black	20800904
4	Spout, Faucet Polished	35801308
5	Tip, Spout - Black	20801504

Item	Description	Part No.
6	"O" ring, Spout	34201004
7	Body Assembly - Chrome Plated Plain Body Assembly - Chrome Plated 3 LED	----- -----
8	Gasket, Sink	20819001
9	"O" ring, Tube Spacer/Stop	34201019
10	Collet 3/8" Blue	33502005

Figure 11: Parts Breakdown, Air Gap Product Water Faucet, Polymer Chrome-Plated - Black, Hydrotap® Logo P/N 11411200 and Smartap® Logo (with Light Bar) P/N 11402430



Item	Description	Part No.
1	Cover, 4-vessel Manifold – Pushbutton Monitor Hydrotech Logo	43066790
1A	Cover, 3-vessel Manifold – Pushbutton Monitor Hydrotech Logo	43014051
2	Battery, 9-volt alkaline	31300001
3	Monitor, Water Quality - Smartap®	40200002
4	Guard, Pushbutton	20500050
5	Pushbutton, Monitor	20500080

Item	Description	Part No.
6	Bracket, Mounting	21100001
7	Screw, Mounting Bracket	32701006
8	Screw, Retaining Plate	32701038
9	Plate, Retaining - Inlet Valve Cover	31900041
10	Cover, Inlet Valve	20500066
11	"O" Ring, Inlet Valve Cover	34201024

Figure 12 Exploded Schematic, 101 Series Four Vessel Manifold Module; Parts Breakdown, 101/102/103 Series

Item	Description	Part No.
12	Shut Off Assembly	40600010
13	Elbow, 1/4" Stem w/white collet	33503502
14	Flow Control (by Model)	
	Model 10103/10203/10303, Red Tape	40600003
	Model 10104/10204/10304, Yellow Tape	40600004
	Model 10105/10205, Black Tape	40600005
	Model 10106/10206, Purple Tape	40600006
	Model 10107/10207, Orange Tape	40600007
15	Cap, Flow Control w/"O" Ring	40600050
16	Elbow, 1/4" Stem w/red collet	33503505
17	Elbow, 3/8" Stem w/blue collet	33503503
18*	Manifold 4 vessel, Qualified P/B 9 GPD	41003001
	Manifold 4 vessel, Qualified P/B 15 GPD	41003002
	Manifold 4 vessel, Qualified P/B 25 GPD	41003003
	Manifold 4 vessel, Qualified P/B 35 GPD	41003004
	Manifold 4 vessel, Qualified P/B 45 GPD	41003005
18A*	Manifold 3 vessel, Qualified P/B 9 GPD	41003006
	Manifold 3 vessel, Qualified P/B 15 GPD	41003007
	Manifold 3 vessel, Qualified P/B 25 GPD	41003015
	Manifold 3 vessel, Qualified P/B 35 GPD	41003016
	Manifold 3 vessel, Qualified P/B 45 GPD	41003017
19	Check valve, Duckbill	42500014
20	Stop, Tube	20500094
21	Retainer Assembly, Outlet	40600033
22	"O" Ring, Membrane Flow Tower	34201006
23	"O" Ring, Cartridge	34201010
24	Cartridge, Carbon	41400075
25	Filter, Membrane Thin Film Composite	
	Model 10103/10203, Green Casing Red Tape	41400003
	Model 10104/10204, Green Casing Yellow Tape	41400004
	Model 10105/10205, Green Casing Black Tape	41400005
	Model 10106/10206, Green Casing Purple Tape	41400006
	Model 10107/10207, Green Casing Orange Tape	41400007
25A	Filter, Membrane Cellulose Triacetate	
	Model 10303, Blue Casing, Red Tape	41400001
	Model 10304, Blue Casing, Yellow Tape	41400002
26	"O" Ring, Filter Housing	34201026
27	Housing, Filter	20500023
28	Cartridge, String-Wound Pre-Filter	41400008
Optional Faucet Smartap® Monitor		
29	Cover, 4-vessel Manifold - Faucet Monitor Hydrotech Logo	43082055
29A	Cover, 3-vessel Manifold - Faucet Monitor Hydrotech Logo	43014053
30**	Manifold 4 vessel, Qualified F/M 9 GPD	41003008
	Manifold 4 vessel, Qualified F/M 15 GPD	41003009
	Manifold 4 vessel, Qualified F/M 25 GPD	41003010
	Manifold 4 vessel, Qualified F/M 35 GPD	41003011
	Manifold 4 vessel, Qualified F/M 45 GPD	41003012
30A**	Manifold 3 vessel, Qualified F/M 9 GPD	41003013
	Manifold 3 vessel, Qualified F/M 15 GPD	41003014
	Manifold 3 vessel, Qualified F/M 25 GPD	41003018
	Manifold 3 vessel, Qualified F/M 35 GPD	41003019
	Manifold 3 vessel, Qualified F/M 45 GPD	41003020
31	Monitor, Faucet Smartap® Monitor 4-Vessel	40200077
31A	Monitor, Faucet Smartap® Monitor 3-Vessel	40200012
32	Switch Assembly, Flow Meter	40200043
33	Switch Assembly, Inlet Valve	40200044
* Includes 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, and 21		
** Includes 8, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 32, and 33		

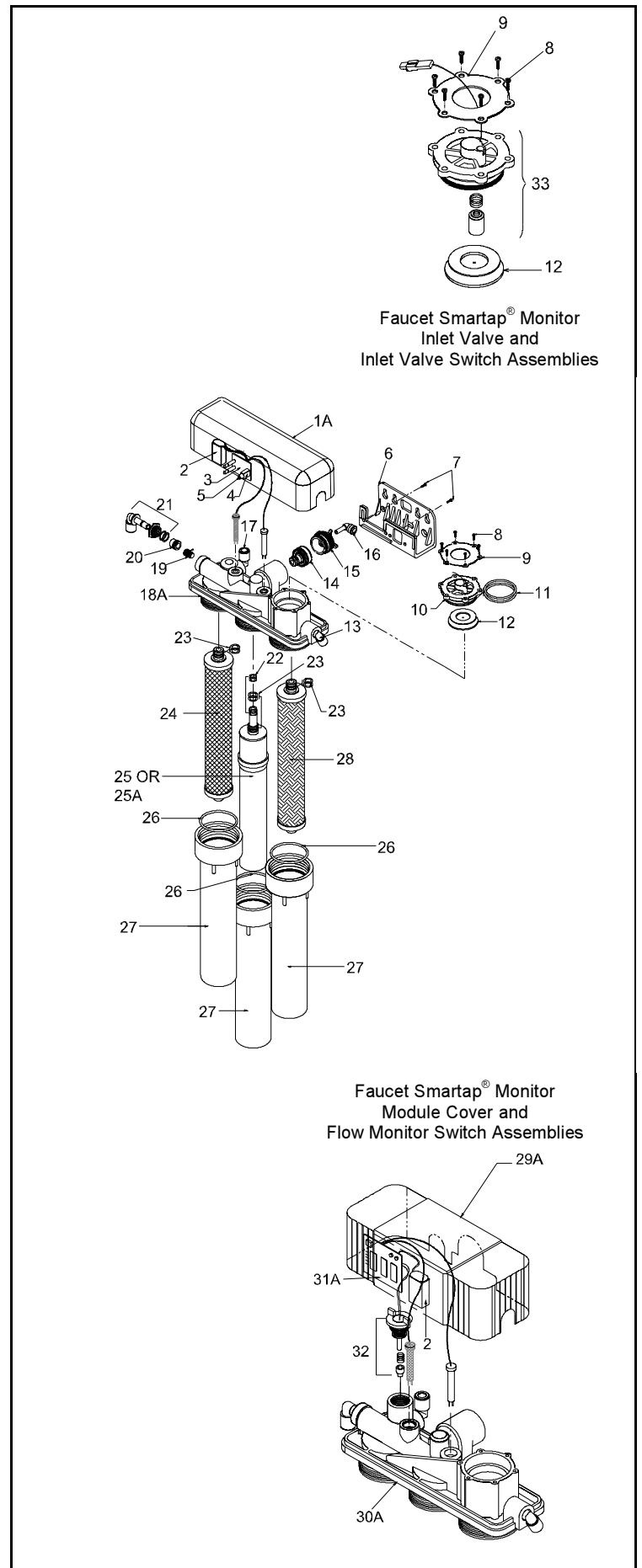
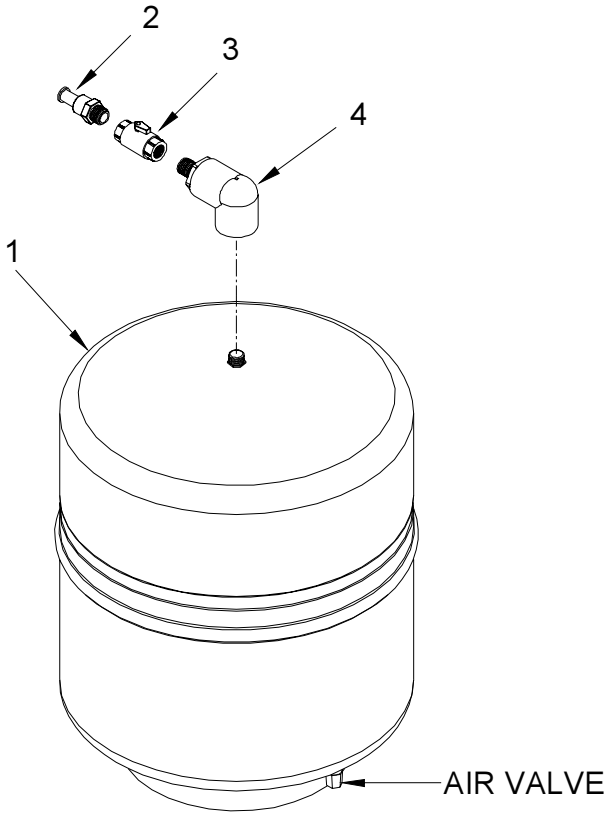


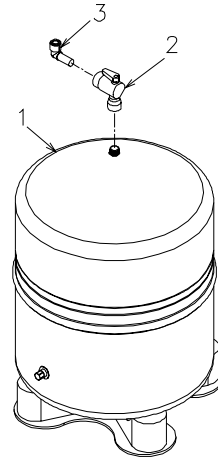
Figure 13 Parts Breakdown, 101/102/103 Series; Exploded Schematic 102/103 Series Three Vessel Manifold Module

38.9L (10.3 GAL) CAPACITY STEEL - BLUE
[28.3 L (7.49 gal) usable capacity]
Dimensions with fittings: 24" H x 15" D



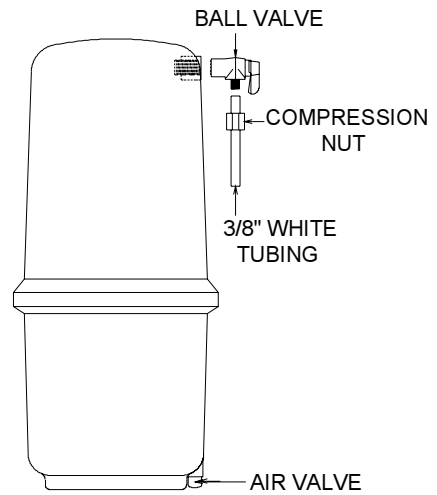
Item	Description	Part No.
Storage Tank Assembly		42600003
1	Tank, Product Water Storage - Blue	34500002
2	Valve, Shut-off 1/4" MNPT X 1/4" FNPT	34900007
3	Connector, 3/8" x 1/4" MNPT	33501020
4	Elbow Assembly, 3/4" FNPT x 1/4" FNPT	40900035

12.1L (3.2 GAL) CAPACITY STEEL - WHITE
[8.8 L (2.4 gal) usable capacity]
Dimensions with fittings: 17" H x 11" D



Item	Description	Part No.
Storage Tank Assembly		42600017
1	Tank, Product Water Storage - White	34500003
2	Valve, Shut-off	33503601
3	Elbow, 3/8" Stem w/white collet	33503504

11.3 L (3 GAL) CAPACITY POLYMER - WHITE
[6.8 L (1.8 gal) usable capacity]
Dimensions with fittings: 20" H x 10" D



Polymer Storage Tank Assembly	34500023
--------------------------------------	-----------------

Figure 14 Parts Breakdown, Product Water Storage Tank Assemblies

ACTIVATING THE SYSTEM

CAUTION: Make sure all water supply lines, drain lines, and fittings are secure and free from leakage.

1. Open saddle-tapping valve. Close product water faucet. Check for leakage.
2. Turn tank valve one-quarter turn counter-clockwise to open valve (handle should be in line with tubing as it enters connection).
3. Confirm system is producing water. Module will be sending rinse water to drain.

NOTE: Item Callouts refer to Page 12, Figure 12 (101 Series) or Page 13, Figure 13 (102/103 Series) unless noted otherwise.

4. **CAUTION:** Wiring within module cover connects monitor components. If wires, circuit board, or connections are damaged and/or wetted, monitor will not function.

Loosen mounting bracket screws (Item 7). Gently pull module cover (Item 1) up and away from the manifold body.

5. **CAUTION:** Verify battery connector alignment before making connection (Figure 15).

CAUTION: Connect battery located inside module cover or on manifold (101 Series Faucet Monitor only) to monitor after system has been in production mode for at least 5 minutes. This ensures sensing switch is in proper position to record data.

Connect battery (Item 2) by pressing clip onto battery terminals (Page 18, Figure 15).

6. Replace module cover and tighten screws.

7. Test battery connection by activating monitor. Open product water faucet or press pushbutton, whichever is applicable. If indicator light illuminates, connection is good

NOTE: Close faucet immediately after light illuminates. Test is to confirm battery connection, not water quality.

8. Open product water faucet and let water flow until all air has been expelled from system. Lock faucet open by rotating handle 90° or by lifting handle, whichever is applicable.

9. Close product water faucet. In 30 minutes, check connections for leaks and correct if necessary.

Icemaker/Extra point of use: Check connections on these supply lines for leaks.

10. Allow storage tank to fill overnight.

11. **WARNING: DO NOT USE THE FIRST FULL STORAGE TANK OF WATER**

Discard (to drain) first full tank of water by opening product water (and extra point-of-use) faucet until water flow stops, then close faucet. This will flush sanitizing solution from system.

Icemaker: Let tray/bin fill with ice cubes. Discard all ice cubes. This flushes sanitizing solution from lines to icemaker.

12. System is ready to use. Should there be any aftertaste or odor to water or ice cubes, repeat Steps 10 and 11.

DO NOT USE THE FIRST STORAGE TANK OF WATER

Allow storage tank to fill overnight. Dispense this water to drain.

This process removes factory-installed sanitizing solution from the entire system and sends it to drain.

This process also sanitizes fittings and tubing used during installation.

KEY COMPONENTS

MEMBRANES AND FILTERS

Membrane - Cellulose Triacetate	Part No.	Membrane - Thin Film Composite	Part No.	Filter	Part No.
Blue Casing		Green Casing		Sediment Filter - Black Cap	41400008
Model 10303 - Red Tape	41400001	Models 10103/10203 - Red Tape	41400003	Activated Carbon Filter - Blue Cap	41400075
Model 10304 - Yellow Tape	41400002	Models 10104/10204 - Yellow Tape	41400004		
		Models 10105/10205 - Black Tape	41400005		
		Models 10106/10206 - Purple Tape	41400006		
		Models 10107/10207 - Orange Tape	41400007		

PRODUCT WATER FAUCETS AND STORAGE TANKS

Air Gap Faucet	Part No.	Air Gap Polymer Faucet Black/Chrome	Part No.	Storage Tanks	Part No.	Storage Tanks	Part No.
Stainless Steel	40301004	Polymer, Hydrotap® Logo	11411200	12.1L (3.2 gal) Steel White	42600017	38.9L (10.3 gal) Steel Blue 11.3L (3 gal) Polymer White	42600003 34500023
Chrome Plated Brass*	40301101	Polymer, Smartap® Logo	11402430				
Chrome Plated Brass**	40301001	(with Light Bar)					

*Faucet not available in California

**EPA and California Proposition 65 Compliant

PARTS AND SERVICE AVAILABLE THROUGH YOUR HYDROTECH® DEALER

ROUTINE MAINTENANCE

RECOMMENDATIONS	
<p>HAVE ALL COMPONENTS ON HAND AND READY BEFORE BEGINNING PROCEDURE. A CLEAN WORK AREA AND EQUIPMENT ARE ESSENTIAL TO PROPERLY CLEAN AND/OR SANITIZE THE SYSTEM. (i.e., CLEAN HANDS, TOOLS, WORK SURFACE, AND CONTAINERS)</p>	
Service Requirements	Recommended Service Intervals
<p>To insure the system operates at its optimum level, certain routine maintenance must be performed. Frequency of maintenance performance will depend on feed water quality and level of system usage.</p> <p>CLEAN: Each time filters are replaced SANITIZE: At least once a year and each time membrane is replaced</p>	<p>Replace filters as required or every 6 to 12 months depending on feed water quality.</p> <p>Replace membrane as required based on Smartap® Water Quality Monitor indication or periodic TDS rejection tests.</p> <p>Maximum recommended service life for membrane is 60 months.</p>

EQUIPMENT NEEDED		
Safety glasses Rubber gloves, sanitary Wash Cloth, Clean and Lint-free Liquid dish soap	Household bleach - Unscented Only (5 1/4% sodium hypo chlorite) Plastic storage bag Manual Air Pump	Plastic bucket Plastic bowl "O" ring Lube FDA Approved (P/N 30300026)

REPLACEMENT FILTER SETS	
101 SERIES P/N 41400008 Sediment Filter (1 each) P/N 41400075 Activated Carbon Filter (2 each)	102 AND 103 SERIES P/N 41400008 Sediment Filter (1 each) P/N 41400075 Activated Carbon Filter (1 each)
REPLACEMENT MEMBRANES	
101 AND 102 SERIES P/N 41400003, Model 10103 or 10203, Red Tape P/N 41400004, Model 10104 or 10204, Yellow Tape P/N 41400005, Model 10105 or 10205, Black Tape P/N 41400006, Model 10106 or 10206, Purple Tape P/N 41400007, Model 10107 or 10207, Orange Tape	103 SERIES P/N 41400001, Model 10303, Red Tape P/N 41400002 Model 10304, Yellow Tape NOTE Verify membrane type by casing color (TFC is green, CTA is blue) Verify GPD rating (match tape color on membrane to tape on Flow Control)
"O" RINGS	
P/N 34201010 Sediment or Carbon Cartridge to Port P/N 34201026 Filter Housing	P/N 34201010 Membrane to Flow Tower, Lower P/N 34201006 Membrane Flow Tower, Upper

CLEANING, SANITIZING, AND CARTRIDGE REPLACEMENT PROCEDURE

1. Mix mild cleaning solution of dish soap and clean potable water in plastic bowl.
2. Empty storage tank and relieve system pressure. Verify tank valve is open. Close feed water supply valve and open product water faucet.

Ice maker: Transfer ice cubes from bin/tray to clean freezer container for storage until procedure is done.
3. **CAUTION:** Use air hand pump to avoid damaging tank. Verify product water valve is open before proceeding.

Check product water storage tank air pre-charge using low-pressure gauge (P/N 34002024). Air valve is located on tank base. Pre-charge should be 55 kPa (8 psig) with tank empty and tank valve open.
4. **CAUTION:** Do not attempt to remove filter housings until water flow stops. This reduces pressure inside the system so housings may be removed safely.

CAUTION: Additional point-of-use devices (i.e., icemakers) may use filters along their supply line. Remove any filter or treatment device installed between module and delivery device before proceeding.

Remove each filter/membrane housing by turning it counter-clockwise. Remove each filter cartridge as its housing is removed. Discard filters.

IF MEMBRANE IS PERFORMING SATISFACTORILY:
Go to Step 5.

IF MEMBRANE IS DEPLETED OR FOULED:
Discard it and go to Step 7.

5. **CAUTION:** Use sanitary rubber gloves for this procedure to avoid contaminating sanitizing solution, filters, or membrane. Wear gloves whenever cleaning/ sanitizing system components or handling new filter/membrane cartridges.

Clean membrane outer wrap with washcloth and cleaning solution. Do not immerse membrane in solution. Do not scrub membrane wrap with abrasive cleaners. Rinse membrane well with clean potable water.
6. Place membrane into clean plastic bag, close bag.
7. Remove filter/membrane housing "O" rings and wash them with cleaning solution. Rinse them well with clean potable water. Inspect them for damage (i.e., nicks, scratches). Replace damaged "O" rings.

8. **CAUTION:** Do not get Smartap® Water Quality Monitor electronics, wiring, or connectors wet.

Clean filter housings and manifold ports, inside and outside, with washcloth and cleaning solution. Do not use abrasive materials.
9. Rinse manifold/housings with clean potable water.
10. Inspect manifold and filter housing "O" ring groove area for damage (i.e., nicks or scratches). Replace damaged components.
11. Place a small amount of "O" ring lubricant over surface of filter/membrane housing "O" ring. Install "O" ring into filter housing groove.

TO SANITIZE THE SYSTEM: Complete Steps 12-34.

TO INSTALL FILTERS: Complete Steps 19-34.

WARNING: WEAR SAFETY GLASSES WHILE PERFORMING THIS PROCEDURE.

WARNING: READ "WARNINGS" INFORMATION ON BLEACH CONTAINER BEFORE USING CONTENTS.

HANDLE SANITIZING SOLUTION CAREFULLY. AVOID CONTACT WITH UNPROTECTED AREAS.

12. **CAUTION:** Excessive concentrations of bleach will damage plastic and rubber components. Rinse all parts that contact bleach thoroughly with clean potable water.

Mix sanitizing solution of 1.5 ml (1/3 teaspoon) of household bleach and 3.8 L (1 gallon) of clean, potable water in the bucket. Mix solution well.
13. **CAUTION:** Tighten filter housings by hand only. Do not use tools as they will over-tighten and damage housings. Take care not to cut or pinch "O" rings.

Add 236 ml (one cup or 8 oz.) of sanitizing solution to each filter housing and install them onto the manifold (do not install filters or membrane at this time). Tighten each filter housing by hand only.
14. Slowly open source water supply valve.
15. Open product water faucet. Close faucet as soon as water begins to flow from spout.
16. Wait 5 minutes, then close source water supply valve.
17. Wait 25 minutes, then open product water faucet and let water flow to drain.

CLEANING, SANITIZING, AND CARTRIDGE REPLACEMENT PROCEDURE

18. **CAUTION:** Do not attempt to remove filter housings until water flow stops. This reduces pressure inside the system so housings may be removed safely.

Remove filter housings and dispose of water. Rinse filter housings and manifold ports thoroughly with clean potable water.

19. **CAUTION:** Do not remove protective plastic bag from replacement filter/membrane cartridges until so instructed.

Install "O" rings into filter housings. Open top of filter bag enough to expose filter cap and "O" ring grooves. Place a small amount of "O" ring lubricant on surface of each "O" ring.

20. **CAUTION:** Tighten filter housings by hand only. Do not use tools as they will over-tighten and damage housings. Take care not to cut or pinch "O" rings.

CAUTION: Refer to Page 12, Figure 12, or Page 13, Figure 13 for location of each cartridge.

Install filter and membrane cartridges. Hold cartridge by its protective plastic bag and insert cartridge into manifold turning it 1/4 turn as it enters the port. Slide bag from cartridge and discard. Replace each filter housing as each cartridge is installed.

21. Turn feed water valve slowly to open position.

22. Confirm system is producing water. Unit will be sending rinse water to drain.

TO REPLACE BATTERY: Perform Steps 23 – 29.

NOTE: Replace battery with a new alkaline 9-volt battery (P/N 31300001).

23. **CAUTION:** Wiring within module cover connects monitor components. If wires, circuit board, or connections are damaged and/or wetted, monitor will not function.

Remove module cover (Page 15, Step 4).

24. Disconnect battery. The battery connection is a snap type connector (Figure 15).

25. Remove battery by sliding it out of its holder (See Page 15, Step 5).

26. **CAUTION:** Replace battery after system has been in production mode for at least 5 minutes. This ensures sensing switch is in proper position to record data.

Carefully slide battery into its holder.

27. **CAUTION:** Verify battery connector alignment before making connection (Figure 15).

Connect battery by pressing clip onto battery terminals.

28. Test battery connection by activating monitor. Press test button or open product water faucet. If an indicator light illuminates, connection is good.

NOTE: Close faucet after light illuminates. Test confirms connection, not water quality.

29. Replace module cover and tighten screws.

30. Open product water faucet. Let water flow until all air has been expelled from the system.

31. Close product water faucet. Wait 30 minutes, check connections for leaks, and correct if necessary.

Icemaker/Extra point of use: Check lines for leaks.

32. Allow storage tank to fill overnight.

33. **WARNING: DO NOT USE THE FIRST FULL STORAGE TANK OF WATER**

Discard (to drain) first full tank of water by opening product water faucet until water flow stops, then close faucet. This flushes sanitizing solution from system.

Icemaker: Let tray/bin fill with ice cubes. Discard all ice cubes to drain. This flushes sanitizing solution from lines to icemaker. Replace delivery device filter (if applicable).

34. System is ready to use. Should there be any aftertaste or odor, drain storage tank and repeat Steps 32 and 33.

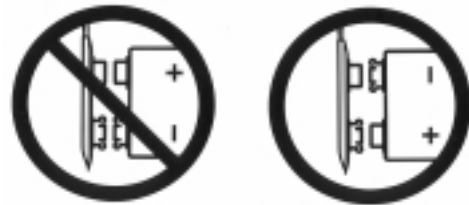


Figure 15 Smartap® Battery Connections

DO NOT USE THE FIRST FULL STORAGE TANK OF WATER

Allow reservoir to fill overnight. Dispense this water to drain.

This process removes sanitizing solution from system, sanitizes fittings and tubing, and sends solution to drain.

HYDROTECH® TROUBLE SHOOTING GUIDE

WATER VOLUME AND QUALITY

Symptom	Condition	Action
No product water.	Water supply is turned OFF.	Turn water ON.
Not enough product water.	Low water pressure. Water supply is blocked. Storage tank valve is closed. Storage tank is depleted. Clogged Pre-filter cartridge(s). Storage tank air pressure charge is low.	Check source water line pressure. Clear restriction. Open storage tank valve. Increase product water storage capacity and/or install membrane and flow control with higher output rating. Replace Pre-filter cartridge(s). Empty water from storage tank (product water valve must remain open while adjusting pressure) and adjust pressure to 55 kPa (8 psig).
System does not shut off.	Shut-off valve is not closing.	Contact your Hydrotech® Dealer.
No drain water.	Clogged Flow Control.	Replace Flow Control.
Water has offensive taste and/or odor.	Carbon post-filter is depleted. Membrane depleted or fouled. Sanitizer not flushed out.	Drain storage tank, sanitize system, and replace carbon post-filter cartridge. Smartap® Monitor reads yellow, or if TDS test is unsatisfactory, drain storage tank, sanitize system, and replace membrane. Drain storage tank and let it refill overnight.

LEAKAGE AND NOISE

Symptom	Probable Cause	Solution
Leak at fitting.	Tubing not pushed completely into fitting. Defective tube.	Push tube into fitting past "O" ring seal. Cut damaged area from tube or replace tube (See Page 2, Figure 2).
Leak at filter housings.	"O" ring has not seated properly. "O" ring has nicks or scratches.	Remove "O" ring and inspect "O" ring groove for debris. Clean groove, lube, and reseal "O" ring. Replace "O" ring.
Leak from air gap in faucet. NOTE: Polymer faucet air gap discharge port located on rear of faucet (Page 11, Figure 11).	Restricted drain tube. Obstructed hole in drain clamp Tubing from air gap to drain is routed incorrectly.	Clear restriction. Remove obstruction. Reroute tubing so tubing runs vertically with no sharp bends or loops.

PUSHBUTTON ACTUATED SMARTAP® WATER QUALITY MONITOR

Indication	Condition	Action
Green Light.	System operating normally.	None.
Yellow Light.	Low or non-usage. Membrane depleted or fouled.	Draw one quart of water from Module. Wait 10 minutes, test. Clean and sanitize system. Replace membrane.
Dim or No Light.	Battery voltage low.	Replace Battery.

FAUCET ACTUATED SMARTAP® WATER QUALITY MONITOR

Indication	Probable Cause	Solution
Green Light.	System operating normally.	None.
Orange Light (appears with green or yellow light).	Shut-off valve is not closing.	Contact your Hydrotech® Dealer.
Yellow Light.	Membrane depleted or fouled.	Clean and sanitize system. Replace membrane.
No Monitor Light.	Light Assembly not connected.	Plug connector into phone jack and check all other monitor connections. Replace battery.

Table 3 System Troubleshooting Indicators and Common Solutions.

LIMITED WARRANTY

Subject to the conditions and limitations described below, Hydrotech warrants its Model 101/HTF, 102/HT, and 103/HT Series Reverse Osmosis Drinking Water Treatment Systems (excluding cartridge filters and battery), when installed in accordance with Hydrotech specifications, to be free from defects in materials and workmanship under normal use within the operating specifications for a period of two (2) years from the date of purchase. Hydrotech also warrants the Smartap[®] Water Quality Monitor to be free from defects in materials and workmanship under normal use within the operating specifications for a period of five (5) years from the date of purchase. This warranty shall apply only to the original end-user of the drinking water system.

Other than the cartridge filters and battery, any part found defective within the terms of this warranty will be repaired or replaced by Hydrotech. If any part is found defective, Hydrotech also reserves the right to replace the drinking water appliance with a comparable Hydrotech drinking water system of equal or greater quality. You pay only freight for repaired or replaced parts from our factory and local dealer charges, including but not limited to labor charges, travel and transportation expenses and handling fees.

This warranty shall not apply to any part damaged by accident, fire, flood, freezing, Act of God, bacterial attack, membrane fouling and/or scaling, sediment, misuse, misapplication, neglect, alteration, installation, or operation contrary to our printed instructions, or by the use of accessories or components which do not meet Hydrotech specifications. If the drinking water system is altered by anyone other than Hydrotech, the warranty shall be void.

ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THE PERIOD SPECIFIED ABOVE FOR THE PARTS DESCRIBED IN THIS LIMITED WARRANTY.

As a manufacturer, we do not know the characteristics of your water supply. The quality of water supplies may vary seasonably or over a period of time. Your water usage may vary as well. Water characteristics can also change if the drinking water appliance is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligation for us. Further, we assume no liability and extend no warranties, express or implied, for the use of this product with a non-potable water source or a water source which does not meet the conditions for use as described in this Owners Guide.

HYDROTECH'S OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PARTS OF THE DRINKING WATER SYSTEM, AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL OR OTHER DAMAGES, WHETHER FROM CORROSION OR OTHER CAUSES.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Similarly, some states do not allow the exclusion of incidental or consequential damage, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights that vary from state to state.



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