

INSTALLATION INSTRUCTIONS FOR ELECTRONIC SENSOR ACTIVATED HAND WASHING FAUCET



ETF-800

Wall Mounted, Sensor Activated
Electronic Hand Washing Faucet for
tempered or hot/cold water operation.

Compliant to:
ASME A112.18.1
and **CSA B125.1**



Listed by I.A.P.M.O.

LIMITED WARRANTY

Sloan Valve Company warrants its Optima ETF-800 Electronic Hand Washing Faucet to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which it is intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of three years (1 year for special finishes) from date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts which prove to be thus defective if returned to Sloan Valve Company, at customer's cost, and this shall be the sole remedy available under this warranty. No claims will be allowed for labor, transportation or other incidental costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

PRIOR TO INSTALLATION

Prior to installing the Sloan ETF-800 Faucet, install the items listed below. Also, refer to the Rough-In.

- **When Using Plug-In Transformer** — Install electrical receptacle for plug-in transformer (120 VAC, 2 amp service for each ETF-233 (24 VAC, 35 VA) plug-in transformer used).
- **When Using Box Mount Transformer** — Install electrical wiring to transformer location (120 VAC, 2 amp service for each EL-248-40 (24 VAC, 40 VA) transformer used).
- Lavatory/sink
- Drain line
- Hot and cold water supply lines or tempered water supply line

Multiple Faucets

Multiple faucets can be powered by a single transformer, provided that the transformer has been properly sized. Allow a minimum of 15 VA of current rating for each solenoid valve used. Refer to "Step 7 — Install Transformer" for further information.

Important:

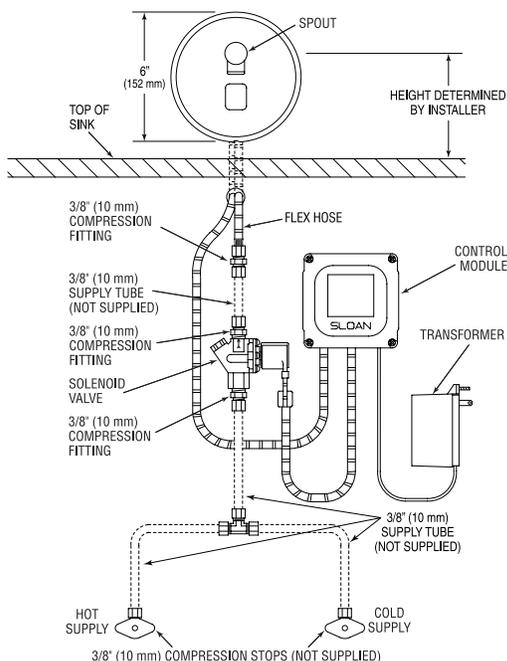
- **INSTALL ALL ELECTRICAL WIRING IN ACCORDANCE WITH NATIONAL/LOCAL CODES AND REGULATIONS.**
- **INSTALL ALL PLUMBING IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.**
- **A 24 VAC STEP-DOWN TRANSFORMER MUST BE USED.**
- **USE APPROPRIATE PRECAUTIONS WHILE CONNECTING TRANSFORMER TO 120 VAC POWER SOURCE.**
- **DO NOT PLUG TRANSFORMER INTO POWER SOURCE (RECEPTACLE) UNTIL ALL WIRING IS COMPLETED. ALLOWING 24 VAC TRANSFORMER WIRES TO TOUCH OR SHORT WHILE POWER IS BEING SUPPLIED WILL CAUSE PERMANENT DAMAGE TO THE TRANSFORMER AND CIRCUIT CONTROL MODULE.**
- **KEEP THREAD SEALANT OUT OF YOUR WATERWAY TO PREVENT COMPONENT PART DAMAGE! DO NOT USE ANY SEALANT ON COMPRESSION FITTINGS. FOR THREADED PIPE FITTINGS, DO NOT APPLY SEALANT TO THE FIRST TWO "STARTER" THREADS.**
- **FLUSH ALL WATER LINES UNTIL WATER IS CLEAR BEFORE CONNECTING SOLENOID TO SUPPLY STOPS.**

TOOLS REQUIRED FOR INSTALLATION

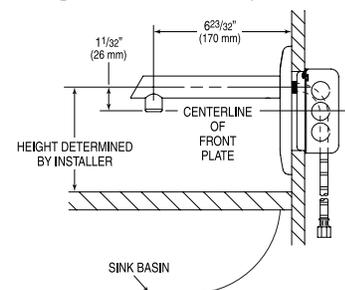
- Saw for cutting mounting hole in wall
- Electric drill and standard drill bits
- Straight blade and phillips blade screwdrivers
- Standard open end wrenches
- Basin wrench
- 1/8" hex wrench
- Pipe wrench for installing drain lines
- Pliers
- Wire stripper/crimping tool

FAUCET ROUGH-IN

ETF-800 Faucet with Bak-Chek® Tee
for Hot and Cold Water Supply



Rough-in Dimensions (side view)

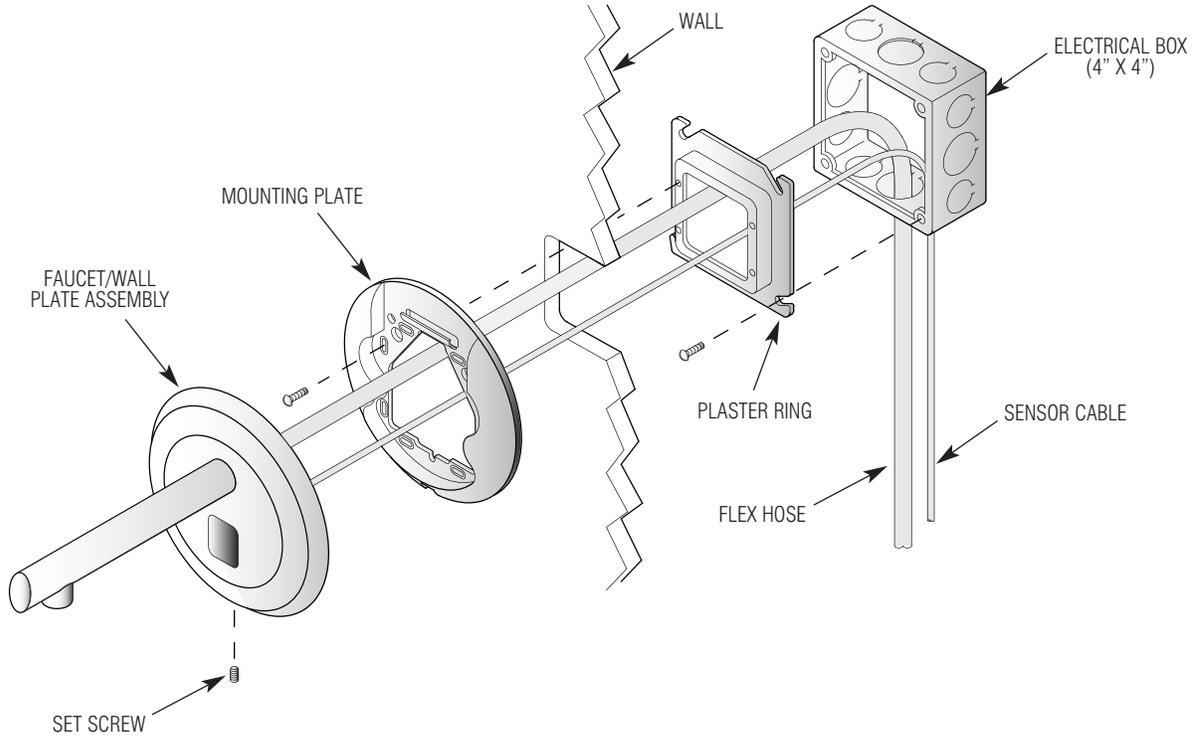


Bak-Chek® Tee Usage

When connecting the Sloan ETF-800 Faucet to both hot and cold water supplies, a Bak-Chek® Tee is provided and required as illustrated in Figure 6. Water temperature can be controlled by adjusting the supply stops.

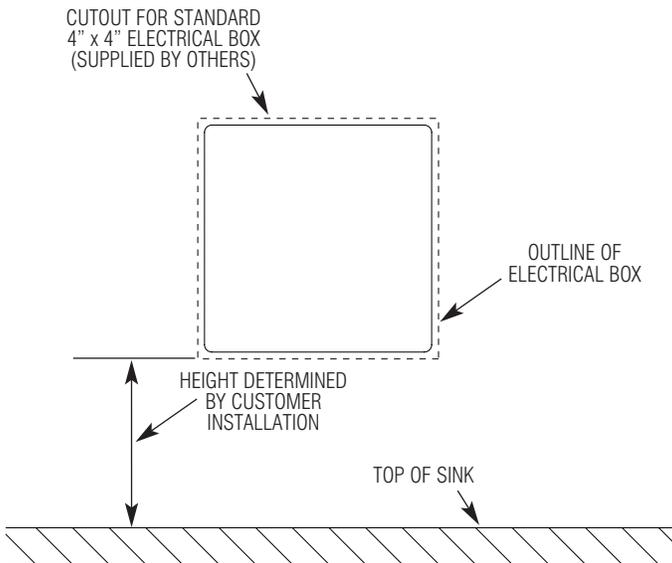
When connecting the faucet to a single line water supply or a pre-tempered water supply, a Bak-Chek® Tee is not required.

Exploded Assembly View



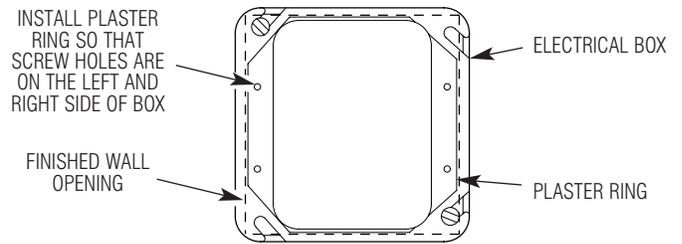
1 Determine Mounting Location and Cut Mounting Hole

A Measure and mark mounting hole location on wall.

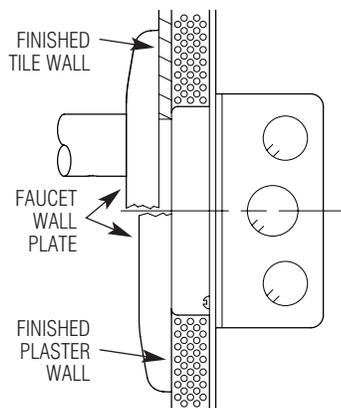


Electrical Box Installation Diagram

FRONT VIEW



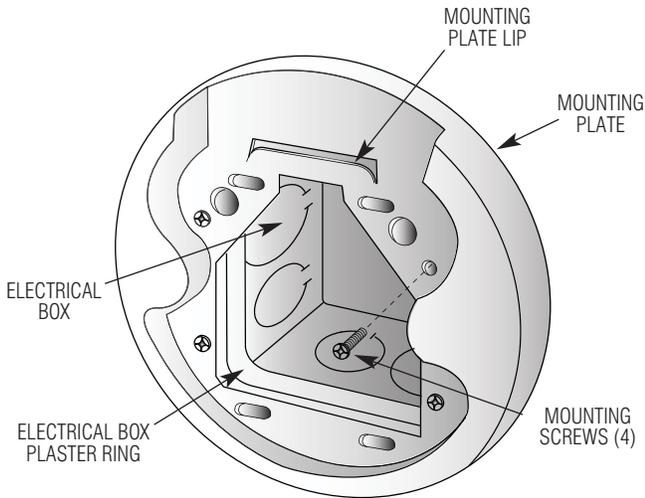
SIDE VIEW



2 Install Electrical Box and Mounting Plate to Wall

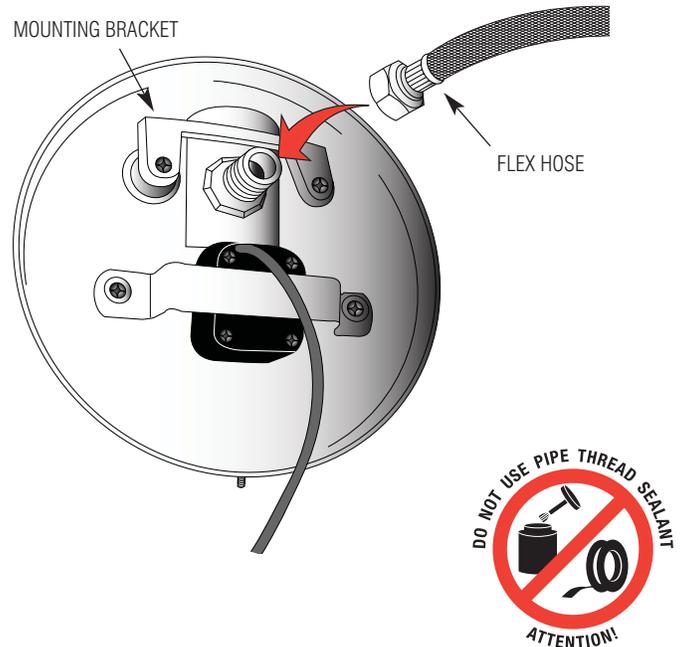
Note: Refer to Exploded Assembly View on Page 2..

- A** Position and hold Electrical Box with Plaster Ring behind wall. Fasten Mounting Plate to Plaster Ring using four (4) screws. Tighten screws securely.



3 Connect Flex Hose to Faucet

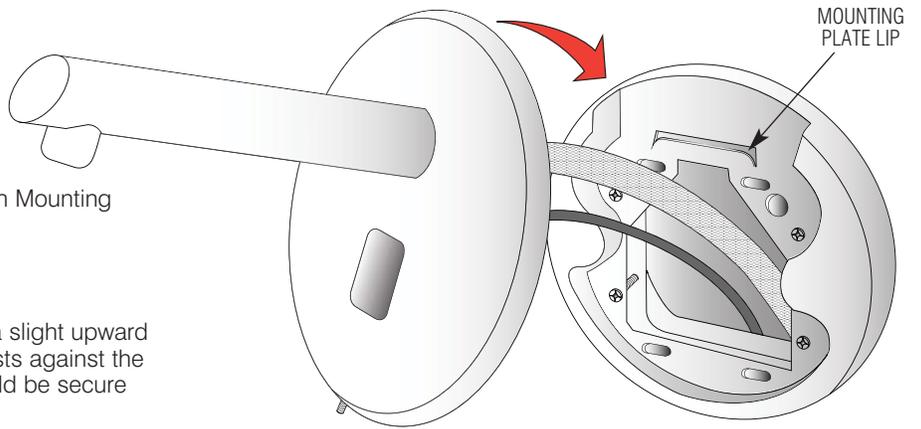
- A** Connect Flex Hose to Faucet. Tighten fitting securely.



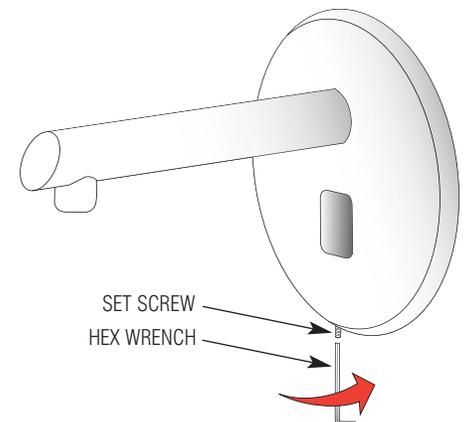
4 Install Faucet

Note: Refer to Exploded Assembly View on Page 2..

- A** Feed Sensor Cable and Flex Hose through Mounting Plate, Plaster Ring and Electrical Box.
- B** Install Faucet onto Mounting Plate Lip at a slight upward angle and lower Faucet until Wall plate rests against the wall. The Faucet's mounting bracket should be secure within the mounting lip.



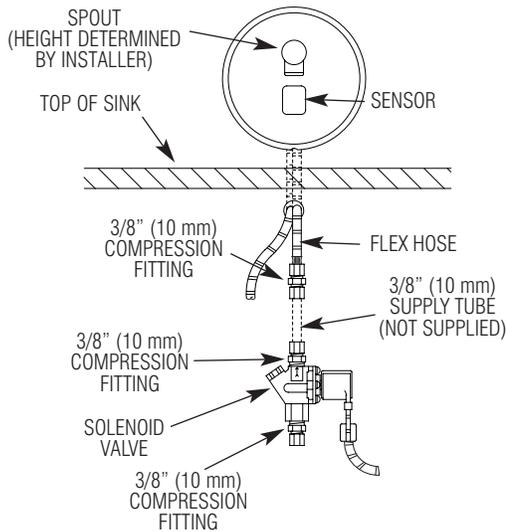
- C** Tighten Set Screw at bottom of Wall Plate using Hex Wrench.



5 Install Solenoid Valve

Note: Flow direction of Solenoid Valve is indicated by an arrow on the Valve Body.

- A** Install Compression Fitting onto end of Flex Hose. Connect 3/8 inch O.D. Supply Tube between Compression Fitting on outlet side of Solenoid Valve and Compression Fitting on Flex Hose.



6 Connect Supply Line(s) from Supply Stop to Solenoid Valve Inlet

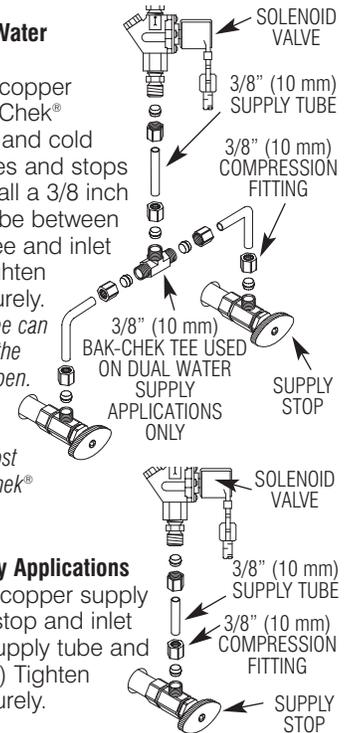
Important: Keep thread sealant out of your waterway and prevent component part damage! Do not use sealant on compression fittings. When thread sealant is used, do not apply it to the first two "starter" threads.

Important: Flush dirt, debris, and sediment from the supply line(s).

A For Dual Line Hot and Cold Water Supply Applications

Install a 3/8 inch (10 mm) copper supply tube between Bak-Chek® Compression Tee and hot and cold supply stops. (Supply tubes and stops furnished by installer.) Install a 3/8 inch (10 mm) copper supply tube between Bak-Chek Compression Tee and inlet side of Solenoid Valve. Tighten Compression Fittings securely.

Note: Failure to install the Bak-Chek® Tee can result in a cross flow connection when the faucet is off and the supply stops are open. If pressure of the hot and cold water supply differ, hot water can migrate into the cold water supply or vice-versa. Most plumbing codes require that the Bak-Chek® be used to prevent this.



B For Single Line Water Supply Applications

Install a 3/8 inch (10 mm) copper supply tube between the supply stop and inlet side of Solenoid Valve. (Supply tube and stop furnished by installer.) Tighten Compression Fittings securely.

7 Install Transformer

Multiple Faucets

Multiple faucets can be powered by a single transformer that has been properly sized. Allow a minimum of 15 VA of current rating for each solenoid valve used. Refer to the following example to determine the required current rating for 3 OPTIMA faucets.

Example:

Total number of OPTIMA faucets:	3
Total number of solenoid valves:	3
Multiply by current rating:	15 VA

Minimum current rating of required transformer: 45 VA

Transformers Available with the ETF-800 Faucets

Standard Plug-In †	ETF-233	120 VAC	35 VA
Standard Box Mount	EL-248-40	120 VAC	40 VA
Standard Box Mount	EL-154	120 VAC	50 VA

† In Canada, use ETF-416 (120 VAC, 35 VA)

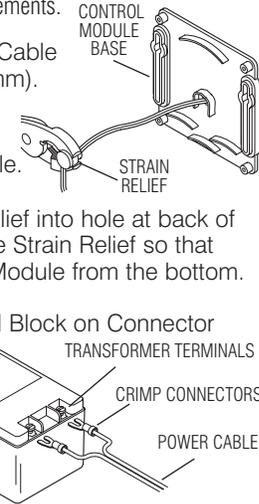
All Sloan transformers are 50/60 Hz.

Other transformers (not supplied by Sloan) may be used provided they meet requirements for Class 2 transformers.

PLUG-IN TRANSFORMERS

Important: DO NOT plug Transformer into receptacle until all wiring has been completed. The Transformer is supplied with a 10 foot Cable; however, this Cable can and should be shortened to meet installation requirements.

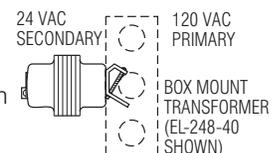
- A** Strip ends of Transformer Power Cable approx. 3/16 to 1/4 inch (5 to 6 mm).
- B** Install Strain Relief 3 inches (76 mm) from one end of Power Cable.
- C** Insert Power Cable and Strain Relief into hole at back of Control Module. Install right angle Strain Relief so that Power Cable enters the Control Module from the bottom.
- D** Connect Power Cable to Terminal Block on Connector Board. See Step 9.
- E** Install Crimp Connectors and connect Power Cable ends to Transformer Terminals.



BOX MOUNT TRANSFORMER

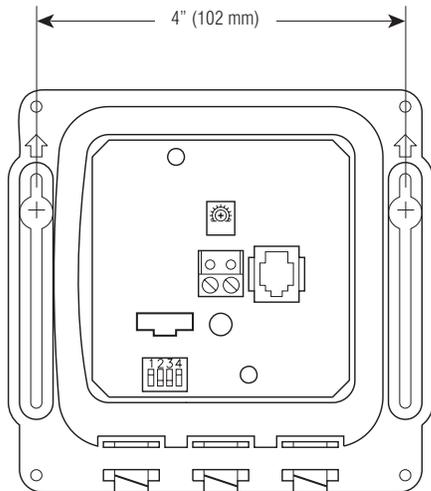
Important: DO NOT supply power to primary side of Transformer until wiring is completed. Mount Transformer on a metal electrical junction box (supplied by others). ("J" box should be mounted inside chase wall or above ceiling.) Install Transformer within 50 feet (15.24 meters) of Faucet. 18 gauge wire is recommended.

- A** Run wires from secondary side of Transformer to 3/8 inch (10 mm) hole at back of Control Module Enclosure. If necessary, wires can be run through wall and then inserted through hole in back of Control Module Enclosure.



8 Mount Control Module to Wall

- A** Install the Control Module in an appropriate location. Control Module must be installed so that all cables enter from the bottom of the unit. When installed, Cables from the Spout and Solenoid Valve to the Control Module should have some slack.
- B** Mount Control Module to wall using Mounting Screws and Plastic Anchors.

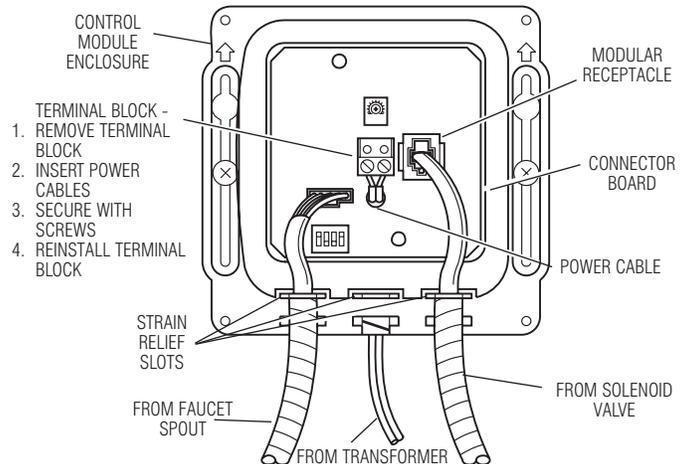


EXTENSION CABLES

Extension Cables are available as an option from Sloan to allow for installing the Control Module remote from the Faucet Spout and Solenoid Valve. Refer to the Parts List for available lengths.

9 Control Module Connections

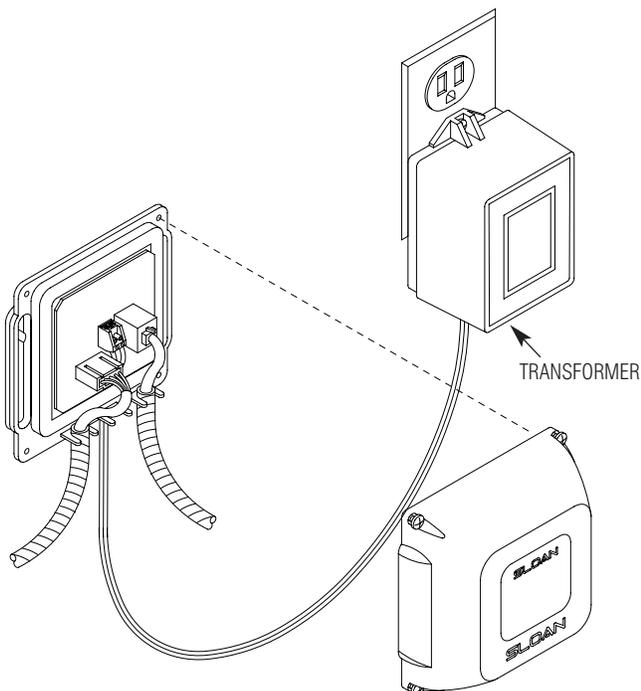
- A** Route Cables from Solenoid Valve and Spout to the Control Module.
- B** Insert Solenoid Valve Connector into the Modular Receptacle on Connector Board.



- C** Insert Locking Connector from Faucet Spout into mating Receptacle on Connector Board. Allow 3 to 4 inches (76 to 102 mm) of Cable to extend into the Control Module.
- D** Insert each Conduit Cable into a strain relief slot in the Control Module.

10 Plug In Transformer

- A** Plug Transformer into 120 VAC Receptacle.



11 Start-Up

- A** Supply power to Transformer.

Note: The Control Module is equipped with two LED lights. When power is supplied by the Transformer, one LED will illuminate green. When Sensor is activated, this LED will change to red. A second red LED illuminates when Solenoid Valve is activated.

- B** Open Supply Stops. With Aerator removed, activate Faucet for 30 seconds by placing hands in front of Sensor. The Solenoid Valve should “click” and water should flow from the Spout. If this does not occur, refer to the Troubleshooting section of this installation instructions.
- C** Close Supply Stop(s) and install Spray Head in Spout using the Key provided. Reopen Supply Stop(s), activate Faucet and check for leaks.

12 Range Adjustment

The OPTIMA ETF-800 Faucet is factory set to operate when hands are placed 4 to 5 inches (102 to 127 mm) from Sensor. This range should be satisfactory for most installations.

If range adjustment is required, refer to the following range adjustment procedures.

TO MAKE A RANGE ADJUSTMENT

The Range Potentiometer and Dip Switches are located in Control Module.

Important: Range Potentiometer adjustment screw rotates only 3/4 of a turn; DO NOT over-rotate.

Make certain that Dip Switch number 4 is in the DOWN position. Using the small screwdriver provided, adjust Range Potentiometer clockwise until green (power ON) indicator LED turns red (Faucet is now picking up sink). Adjust Range Potentiometer back counterclockwise until red LED returns to green. Range is now at maximum.

In the event the LED remains red with the adjustment at minimum (counterclockwise) setting, the sensitivity can be further reduced by switching Dip Switch number 4 to the ON (UP) position.

Cycle Faucet several times to assure that range as adjusted will not inadvertently pick up IR reflection in lavatory. If IR reflection occurs (green LED will flicker red), adjust Range Potentiometer counterclockwise very slightly and again cycle Faucet.

Repeat range adjustment counterclockwise until length of range is at bowl rim of lavatory (plus or minus 1 inch (25 mm)).

Time Out Adjustment

The Faucet Time Out Setting determines the maximum time the Faucet will run upon continuous activation. This timing can be changed to meet individual application requirements.

Refer to Table 1 or label on cover of Control Module along with the following instructions to set the desired Time Out. The Dip Switches used to set the Time Out are located in the Control Module.

Set the Time Out by configuring the number 1, 2 and 3 Dip Switches as shown in Table 1.

Table 1 — Time Out Settings

Time Out	Dip Switch Setting		
	Switch #1	Switch #2	Switch #3
3 SECONDS	UP	UP	DOWN
6 SECONDS	DOWN	DOWN	UP
12 SECONDS	UP	DOWN	UP
30 SECONDS	UP	DOWN	DOWN
45 SECONDS	UP	UP	UP
1 MINUTE	DOWN	UP	UP
3 MINUTES	DOWN	DOWN	DOWN
20 MINUTES	DOWN	UP	DOWN

Unless otherwise specified, all ETF-800 Faucets leave the factory set with a 30 second Time Out.

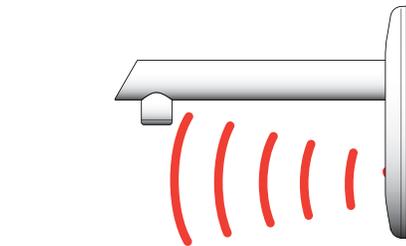
Note: The position of Dip Switch #4 (range enhancer setting) does not affect Faucet Time Outs.

Push Cables into slots at the bottom of the Control Module.

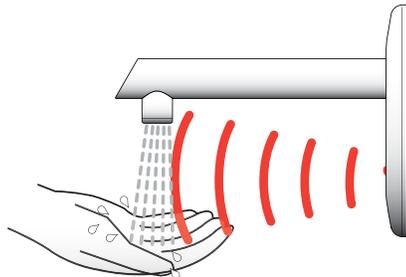
Install Control Module cover using Screws provided.

13 Test Faucet Operation

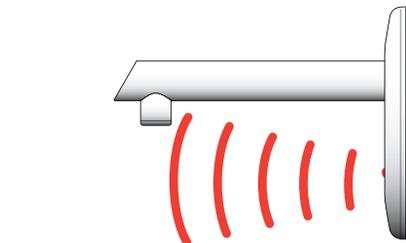
1. A continuous invisible beam of light is emitted from the OPTIMA® Sensor located below the faucet spout.



2. As the user's hands enter the beam's effective range, the beam is reflected back into the sensor receiver and activates the solenoid valve allowing tempered water to flow from the faucet. Water will flow until the hands are removed or until the faucet reaches its automatic time out limit setting.



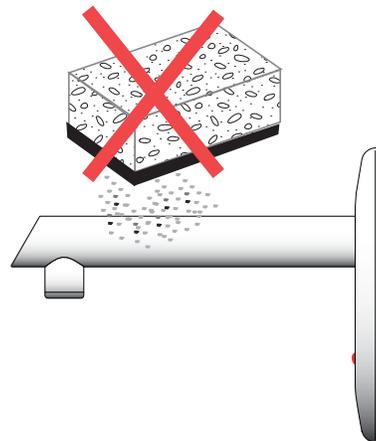
3. When hands are moved away from the OPTIMA® Sensor, the loss of reflected light initiates an electrical signal that deactivates the Solenoid Valve shutting off the water flow. The Circuit then automatically resets and is ready for the next user.



CARE AND CLEANING OF CHROME AND SPECIAL FINISHES

DO NOT use abrasive or chemical cleaners (including chlorine bleach) to clean faucets that may dull the luster and attack the chrome or special decorative finishes. Use ONLY soap and water, then wipe dry with clean cloth or towel.

When cleaning the bathroom tile, protect the faucet from any splattering of cleaner. Acids and cleaning fluids will discolor or remove chrome plating.



TROUBLESHOOTING GUIDE

Note: Remove Cover from Control Module to check diagnostic lights.

1. PROBLEM: No water is delivered when Faucet is activated.

INDICATOR: If no LED lights illuminate:

CAUSE: No electricity is being supplied to Faucet.

SOLUTION: Ensure that the main power is turned "ON." Check all Transformer, Sensor, Solenoid and Cable Connections. Make sure that Transformer is supplying 24 VAC (Volts AC). If no voltage is detected, replace Transformer.

CAUSE: There is an electrical system malfunction.

SOLUTION: Reset electrical system. Unplug Sensor Connection. Disconnect power to circuit for ten (10) seconds. Reconnect.

INDICATOR: If the GREEN LED illuminates when power is reconnected:

CAUSE: There is a short in the Sensor.

SOLUTION: Replace Sensor.

Note: GREEN LED may illuminate immediately after Sensor disconnection.

CAUSE: There is a short in the Solenoid or Solenoid Cable.

SOLUTION: Replace ETF-370-A Solenoid.

INDICATOR: If the GREEN LED does NOT illuminate when power is reconnected:

CAUSE: There is an electrical system malfunction.

SOLUTION: Reset electrical system. Unplug Sensor Connection. Disconnect power to circuit for ten (10) seconds. Reconnect.

CAUSE: The Control Module circuit is "dead."

SOLUTION: Replace ETF-450-A Control Module.

INDICATOR: If GREEN LED illuminates AND changes to RED when hands are in the Sensor's detection zone AND the RED Solenoid LED illuminates:

CAUSE: Water supply stop(s) may be partially closed.

SOLUTION: Open supply stop(s) completely.

CAUSE: Debris is clogging Solenoid Filter.

SOLUTION: Shut off water supply. Remove, clean and reinstall Solenoid Filter.

INDICATOR: If GREEN LED illuminates AND changes to RED when hands are placed in the Sensor's detection zone AND the RED Solenoid LED flickers with a vibrating/clicking noise heard inside the module:

CAUSE: There is a direct short in the Solenoid or Solenoid Cable.

SOLUTION: Replace with ETF-370-A Solenoid.

INDICATOR: If GREEN/RED LED illuminates AND changes to RED when hands are NOT located in the Sensor's detection zone BUT the RED Solenoid LED (in upper left corner of circuit) does NOT illuminate:

CAUSE: Sensor range is set too long and is detecting the sink.

SOLUTION: Reduce Sensor detection range.

CAUSE: Sensor is faulty.

SOLUTION: Replace Sensor.

INDICATOR: If GREEN LED illuminates BUT does NOT change to RED when hands are placed in the Sensor's detection zone:

CAUSE: Sensor range is set too short.

SOLUTION: Increase Sensor detection range.

CAUSE: Sensor is faulty.

SOLUTION: Replace Sensor.

2. PROBLEM: Sensing Range is too short.

CAUSE: Extended Range Sensitivity is required.

SOLUTION: Dip Switch number 4 should be in the "DOWN" (Extended Range Sensitivity) position. Increase range by adjusting Range Potentiometer clockwise (yellow phillips screw in blue base).

3. PROBLEM: Faucet activates by itself (false triggers).

CAUSE: Sensor range is set too long.

SOLUTION: Decrease range by adjusting Range Potentiometer counterclockwise. If necessary, flip Dip Switch number 4 to the "UP" (Reduced Range Sensitivity) position. Check surroundings for factors that contribute to Sensor range detection problems (bright lights, highly reflective surfaces, sunlight, etc.).

4. PROBLEM: Faucet delivers very low flow or just a dribble.

CAUSE: Water supply stop(s) may be partially closed.

SOLUTION: Open supply stop(s) completely.

CAUSE: Debris is clogging Solenoid Filter.

SOLUTION: Shut off water. Remove, clean, and reinstall Solenoid Filter or replace Solenoid Filter ETF-1009-A.

CAUSE: Solenoid is worn or faulty.

SOLUTION: Rebuild with ETF-1009-A Solenoid Repair Kit or replace ETF-370-A Solenoid.

CAUSE: Debris is clogging Faucet Aerator or Spray Head.

SOLUTION: Shut off water. Remove Aerator or Spray Head (use Key if required). Clean and reinstall Aerator or Spray Head.

5. PROBLEM: Faucet does not stop delivering water or continues to drip after user is no longer detected (even after power to the Module has been disconnected).

CAUSE: Solenoid Valve is installed backward.

SOLUTION: Disconnect Solenoid. Reconnect Solenoid with water flow toward the Faucet (see arrow on Solenoid).

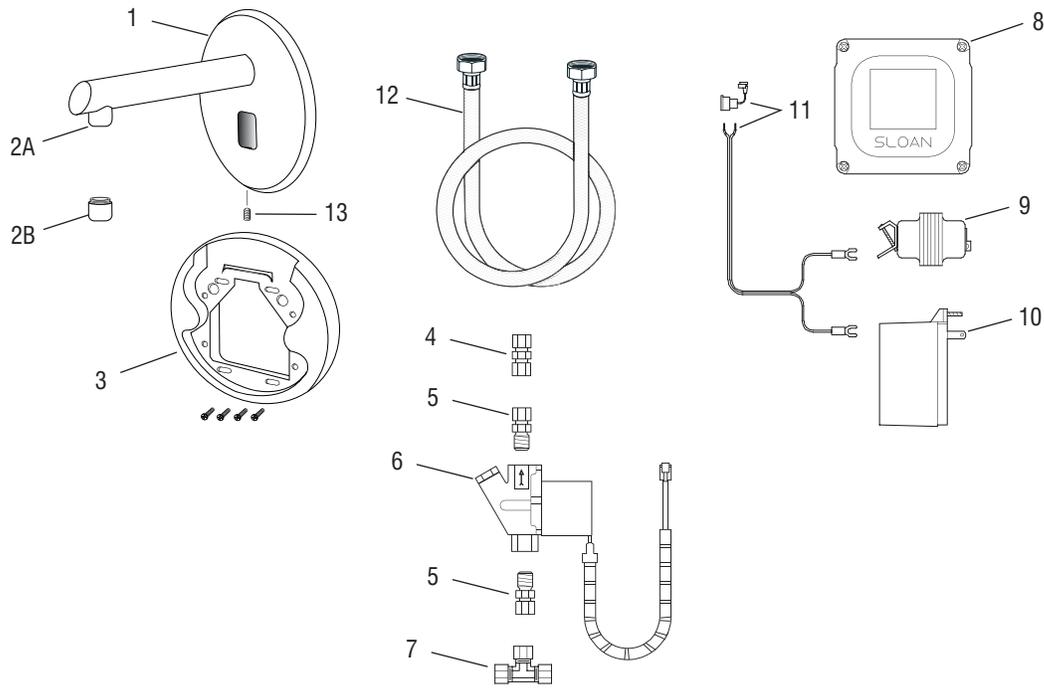
CAUSE: Debris is clogging Solenoid.

SOLUTION: Remove and clean Solenoid Operator. If necessary, rebuild with ETF-1009-A Repair Kit.

CAUSE: Seat in Solenoid Valve body is damaged or pitted.

SOLUTION: Replace with ETF-370-A Solenoid.

PARTS LIST



Item No.	Part No.	Description
1	ETF-797-A	Faucet Spout and Sensor Assembly
2A	ETF-687	1.5 gpm/5.7 Lpm Laminar Flow Spray Head
2B	ETF-801	0.5 gpm/1.9 Lpm Aerator Spray Head
3	EL-356	Mounting Plate with Slotted Flat Head Screws (4)
4 †	ETF-530	Compression Fitting
5 †	ETF-61	Compression Fittings (2)
6	ETF-370-A	24 VAC Solenoid Valve Assembly; Includes Wire Harness
7	ETF-617-A	3/8" Bak-Chek® Tee Compression Fitting
8	ETF-450-A	Control Module Assembly
9	EL-248-40	Box Mount Transformer
10	ETF-233	Plug-In Transformer
11	ETF-458-A	Power Cable with Strain Relief and Crimp Connectors (Transformer to Control Module)
12	MIX-19	Flex Hose
13	ETF-133	Set Screw
†	ETF-798-A	Installation Kit, includes (1) ETF-530, (2) ETF-61 Compression Fittings, (4) Mounting Fasteners and (1) Hex Wrench

SOLENOID VALVE REPAIR KITS

—	ETF-1009-A	Solenoid Valve Repair Kit, Includes Replacement Filter
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If further assistance is required, please contact the Sloan Valve Company Installation Engineering Department at 1-888-SLOAN-14 (1-888-756-2614).

NOTICE: The information contained in this document is subject to change without notice.