ELF/ESF I.I. — Rev. 1a (09/03)
Code No. 0816163

INSTALLATION INSTRUCTIONS
OPTIMA™ SYSTEMS
WALL SENSOR OPERATED
LAVATORY AND SINK FAUCETS

ELF-10

Wall-Mounted Sensor —
Deck-Mounted Lavatory Faucet

ESF-20

Wall-Mounted Sensor —
Deck-Mounted Gooseneck Faucet

ESF-30

Wall-Mounted Sensor —
Back-Mounted Gooseneck Faucet

® Certified

® Listed

Installation of the Sloan OPTIMA™ ELF/ESF Series Faucets makes wash-up totally "hands-free" providing the ultimate in sanitary protection and automatic operation. The OPTIMA Series Faucet uses adaptive infrared technology to sense the user's presence and turn on a tempered water supply. When the user leaves the invisible beam of light, the water supply automatically turns off.

The OPTIMA Series Faucet is designed for easy installation and maintenance. OPTIMA Series Faucets come complete with the Wall Sensor, Cover Plate and Attachment Kit, Solenoid Valve and Faucet Spout. Specify Transformer separately. One Sloan EL-154 Transformer can operate up to three Faucets. ESF Faucets can be specified with either an Aerator or a Spray Head.

The following instructions will serve as a guide when installing the Sloan OPTIMA Series Faucets. As always, good safety practices and care are recommended when installing your new Faucet. If further assistance is required, contact your nearest Sloan Representative office.

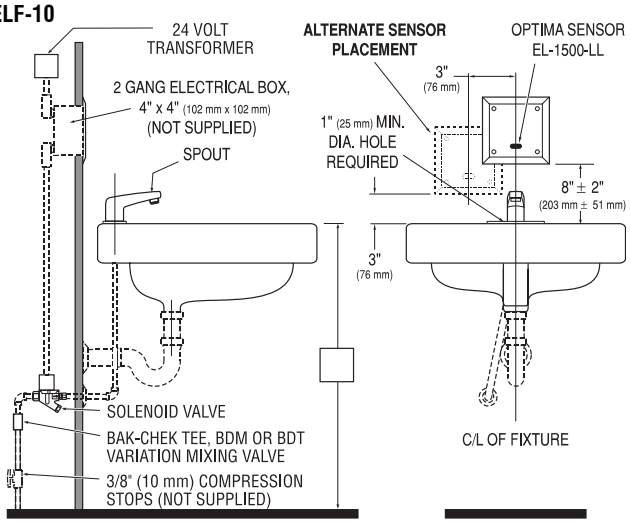
LIMITED WARRANTY

Sloan Valve Company warrants its ELF/ESF Series Faucets to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which they are intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of three years 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.

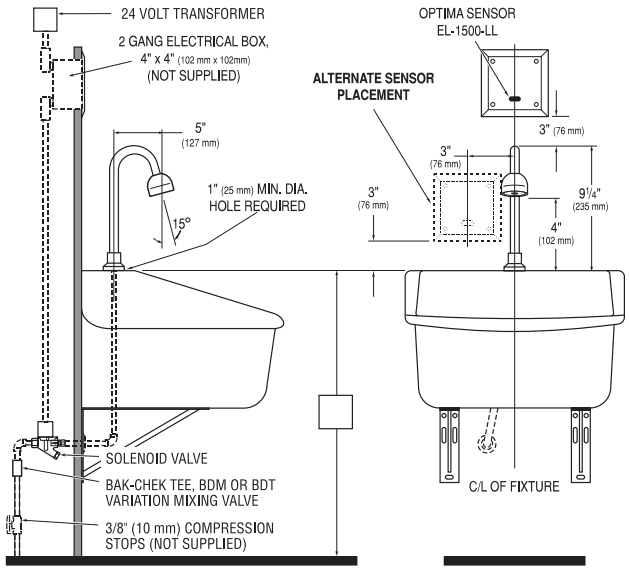
THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

FAUCET ROUGH-IN — Figure 1

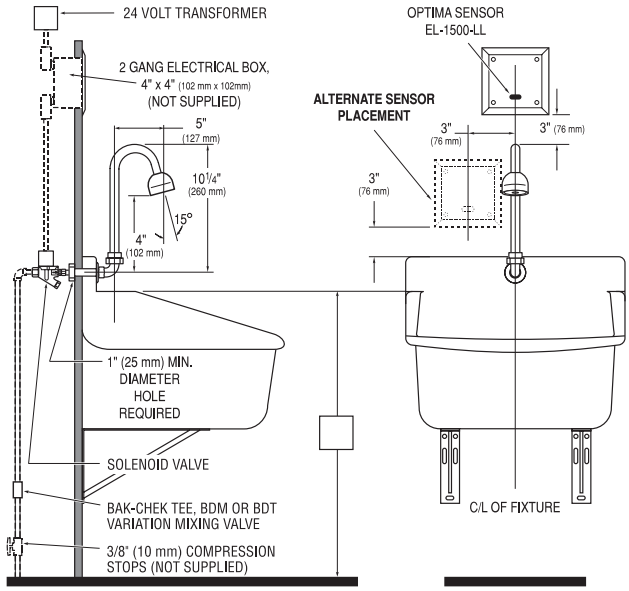
ELF-10



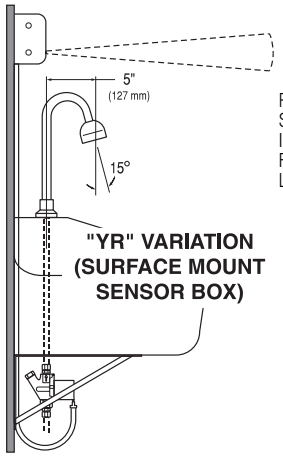
ESF-20



ESF-30

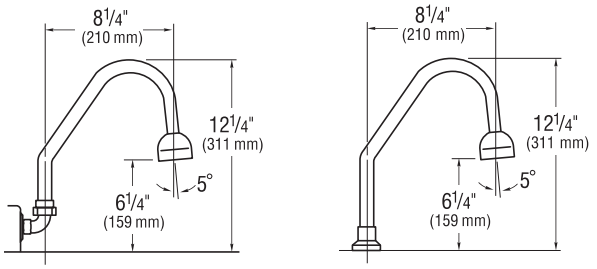


YR VARIATION — Surface Mount Sensor Box

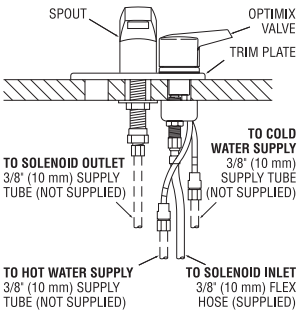


POSITION SENSOR BOX AS SHOWN FOR IN-WALL INSTALLATIONS (REFER TO ROUGH-IN DRAWING AT LEFT)

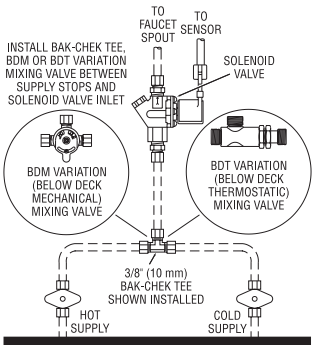
"S" VARIATION — Surgical Bend Spout Dimensions



ADM VARIATION MIXING VALVE ELF-10 and ESF-20 Only (ELF-10 Shown)



BAK-CHEK TEE, BDM & BDT VARIATION VALVES †



ELF Faucets are supplied with a 0.5 gpm/1.9 Lpm Vandal Resistant Spray Head.

ESF Faucets are supplied with a 2.2 gpm/8.3 Lpm Laminar Flow Spray Head.

ESF Faucets specified with the "H" variation are supplied with a 2.2 gpm/8.3 Lpm Shower Spray Head.

Alternate Spray Heads are available. See the Parts List on the back page of this manual for part numbers.

PRIOR TO INSTALLATION

Prior to installing the Sloan OPTIMA Series Faucet, install the items listed below as illustrated in Figures 1, 2, 4 and 5.

- 2-gang electrical box — 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) for Sensor; see paragraph entitled "Sensor Location"
- 2-gang electrical box — 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) for Transformer (mount in a convenient location; refer to Figure 2)
- Electrical wiring to the transformer box (120 VAC, 2 amp service required for each EL-154, 24 VAC, 50 VA Transformer used)
- Wall mounting plate — see paragraph entitled "Sensor Location" (YR Variation surface mount Sensor Box installations only)
- Lavatory/sink
- Drain line
- Tempered water supply line

Important:

- *ALL ELECTRICAL WIRING IS TO BE INSTALLED IN ACCORDANCE WITH NATIONAL/LOCAL CODES AND REGULATIONS.*
- *ALL PLUMBING IS TO BE INSTALLED 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.*
- *FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.*

SENSOR LOCATION (Figures 1 and 4)

SENSOR LOCATION IS CRITICAL — Failure to properly position the Sensor's Electrical Box to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this Sensor Operated Faucet must be familiar with the requirements of its installation. Improper installation may nullify the manufacturer's warranty.

Standard Flush Mount Sensor Box Installations

Refer to Figures 1 and 4 for proper location of Sensor Box. Mount the 2-gang electrical box on center with spout 8 inches (203 mm) above the lavatory (ELF-10) and 3 inches (76 mm) above a gooseneck spout (ESF-20 and ESF-30). Use Appleton #4SD1 Electrical Box and Appleton #8470 Plaster Ring or equivalent.

Note: Install plaster ring so that screw holes are on the right and left side of electrical box.

Note: Break tiles to allow screw holes in plaster ring to show.

For alternate Sensor placement, consult Factory.

YR Variation Surface Mount Sensor Box Installations

Refer to Figures 1 and 5 for proper location of Sensor Box. Mount the Sensor Box on center with spout 8 inches (203 mm) above the lavatory (ELF-10) and 3 inches (76 mm) above a gooseneck spout (ESF-20 and ESF-30).

Using Wall Mounting Plate as a template, mark mounting hole locations on wall as illustrated in Figure 5. Remove Wall Mounting Plate and drill a 5/16" (8 mm) hole at each of the four (4) locations marked.

Install Wall Anchors into wall using a hammer.

Install Wall Mounting Plate using Anchor Screws and Washers provided as illustrated in Figure 7.

TOOLS REQUIRED FOR INSTALLATION

- Slotted screwdriver
- Hammer
- 5/16 (8 mm) drill (if installing YR Variation Surface Mount Sensor Box)
- 5/64" Hex Wrench (supplied)
- 1-3/8" wrench for mounting faucet to sink or wall
- Adjustable wrench for installing solenoid and connecting water inlet line
- Wire stripper/crimping tool

INSTALLATION

Step 1 — Install Transformer (Figure 2)

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 the following example to determine the required current rating for 3 single Solenoid 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 Supplied with the Faucet

Standard Plug-In *	ETF-233	120 VAC	35 VA
Standard Box Mount	EL-248-40	120 VAC	40 VA

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

Optional Transformers Available from Sloan

Box Mount	EL-154	120 VAC	50 VA
Foot Mount	EL-208	120 VAC	100 VA
Box Mount	EL-342	240 VAC	50 VA

All Sloan transformers are 50/60 Hz.

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

Install Transformer (EL-154 shown) on a 2-Gang Electrical Box, 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) in a convenient location as shown in Figure 2.

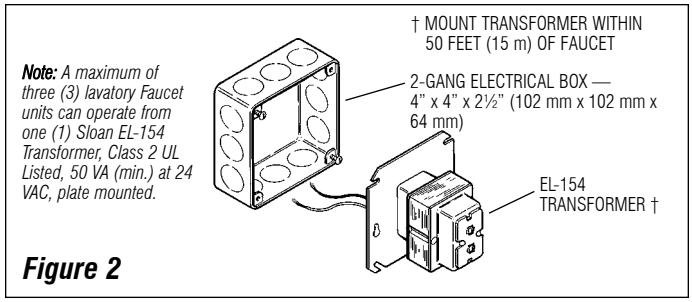


Figure 2

Note: Run 18 Gauge wire from Transformer to Sensor Box. Wire supplied by others. DO NOT supply power to Transformer until installation of Faucet Assembly is complete.

Step 2 — Install Solenoid Valve (Figure 3)

Apply thread sealant or Teflon tape to threads of 3/8 inch Compression Fittings. Install 3/8 inch Compression Fitting to inlet and outlet side of Solenoid Valve.

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

Important: When applying any form of sealant to fitting threads, leave the first two starter threads free of sealant to prevent the possibility of sealant entering into the waterway and damaging system components.

Install the Solenoid Valve to the tempered water supply line.

Important: DO NOT install Solenoid Valve so that the Solenoid Coil is facing down. The Solenoid Valve may be oriented so that the Solenoid Coil faces sideways (vertically); however, optimum performance is obtained when Solenoid Valve is in the horizontal position with the Solenoid Coil facing up as shown in Figure 3.

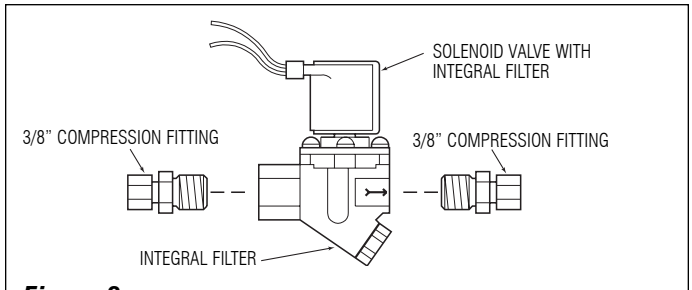


Figure 3

ELECTRICAL BOX INSTALLATION

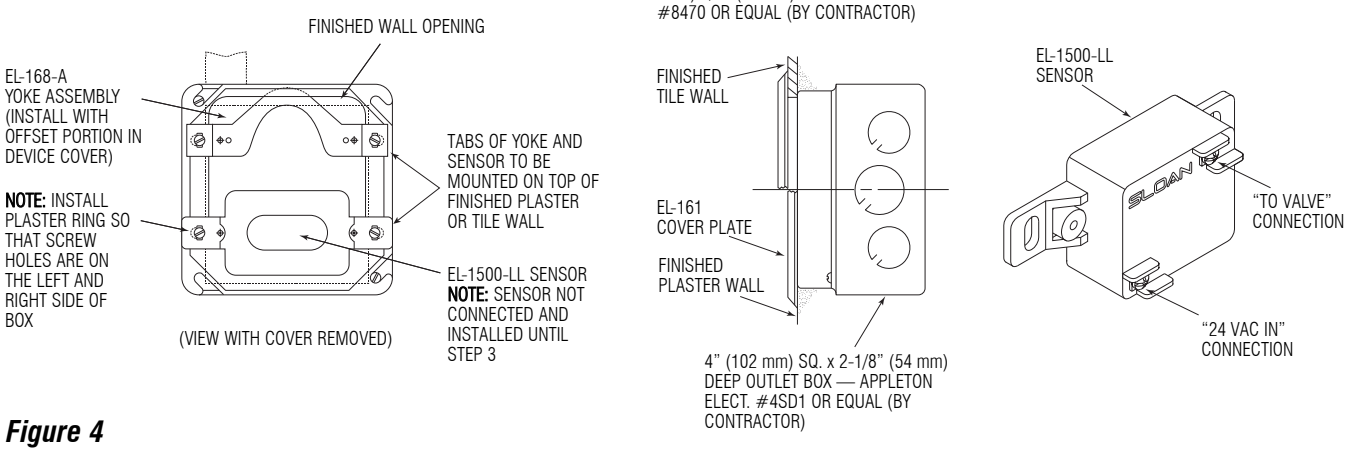


Figure 4

WALL MOUNTING PLATE INSTALLATION (YR VARIATION)

USING WALL MOUNTING PLATE AS A TEMPLATE, MARK MOUNTING HOLE LOCATIONS ON WALL. REMOVE WALL BRACKET AND DRILL A 5/16" (8 mm) HOLE AT EACH OF THE FOUR (4) LOCATIONS MARKED.

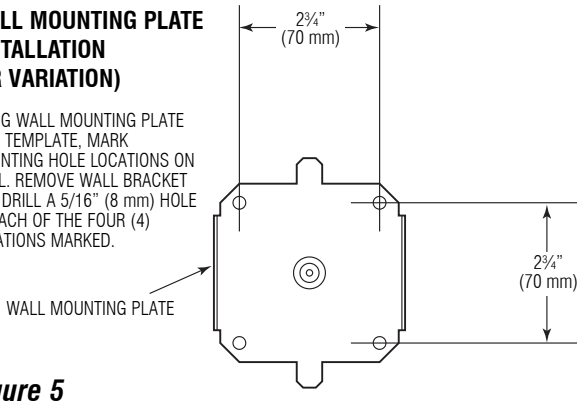


Figure 5

Step 3 — Hook-Up (Figures 4 and 6)

Be certain power is OFF to prevent damage to electrical components. Connect Sensor to Transformer and Solenoid Coil EXACTLY as shown in Figure 6 and instructed below.

A. Connect 24 volt source lead to terminal labeled "24 VAC IN" of Sensor shown in Figure 4.

B. Connect Solenoid Lead to Terminal labeled "TO VALVE" of Sensor shown in Figure 4.

C. Connect remaining Solenoid Lead to remaining 24 volt source lead.

WIRING DIAGRAM

Note: A maximum of three (3) lavatory Faucet units can operate from one (1) Sloan EL-154 Transformer, Class 2 UL Listed, 50 VA (min.) at 24 VAC, plate mounted

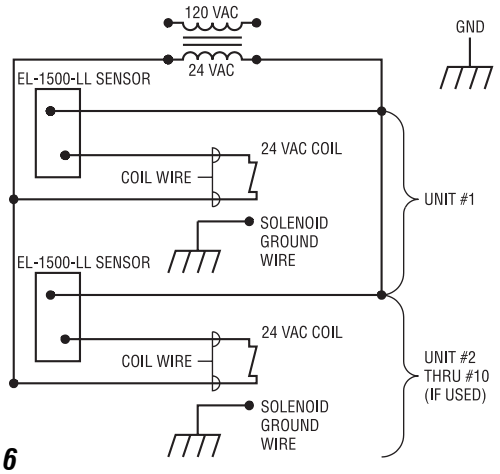


Figure 6

SENSOR BOX ASSEMBLY (YR VARIATION)

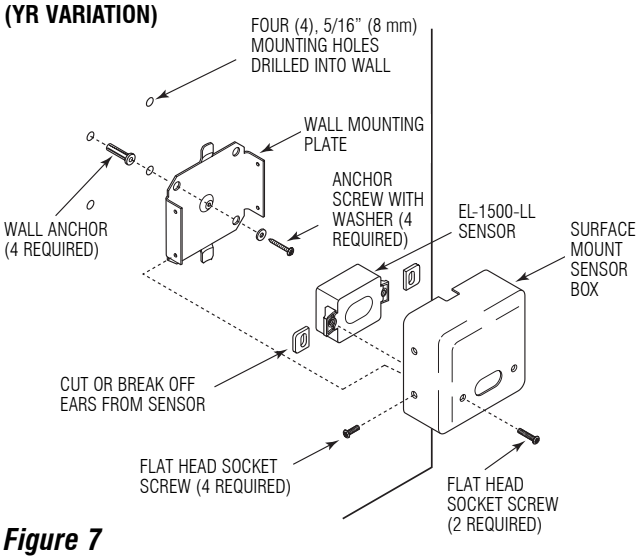


Figure 7

Step 4 — Mount OPTIMA Sensor and Yoke (Figure 4)

STANDARD FLUSH MOUNT SENSOR BOX INSTALLATIONS

Install OPTIMA Sensor EL-1500-LL into the 2-Gang Electrical Box using two (2) long Screws provided. Mount Yoke (EL-168-A) using two (2) long Screws provided. Install Cover Plate (EL-161) using four (4) Cover Plate Screws provided.

YR VARIATION SURFACE MOUNT SENSOR BOX INSTALLATIONS

Install Wall Mounting Plate to wall using supplied Wall Anchors, Screws and Washers as instructed in the Sensor Location section found on the previous page of this installation instructions. Also refer to Figure 5.

Cut or break off the ears from the Sensor as illustrated in Figure 7. Cut just past the oval mounting holes. Place Sensor into Sensor Box and secure with Flat Head Socket Screws provided. Attach Sensor Box to Wall Mounting Plate and secure with four (4) Screws provided.

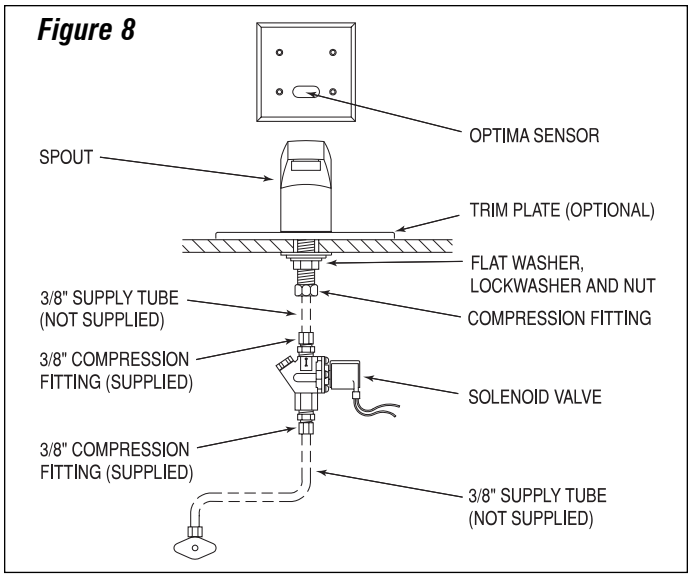
Cover exposed wires with wire mold Type 200 (supplied by others).

Step 5 — Install Faucet (Figure 8)

Install Faucet Spout to deck, back of sink or wall depending on the application and type of Faucet being installed.

Types ELF-10 and ESF-20 are supplied with Mounting Hardware and optional Trim Plate. If Trim Plate is used, place spacers between deck and Trim Plate making certain that spacers are aligned with holes in Trim Plate and holes in deck. If Trim Plate is not used, remove the Roll Pin located at the base of Spout.

Type ESF-30 requires a 1/2" NPT nipple and nut (supplied by others) for back mounting. Length of nipple must accommodate wall/sink thickness.



Step 6 — Install Water Inlet Line (Figure 8)

Install water inlet line from 24 VAC Solenoid to Faucet Spout. Turn on water and check for leaks.

Note: *Sloan OPTIMA ELF and ESF are pre-tempered Faucets. Water temperature must be mixed prior to the Faucet. A wide range of mixing valves can be supplied by the Sloan Valve Company, or a mixing valve can be provided by others.*

Step 7 — Start-Up Mode

The self adaptive Sensor automatically adapts to the surrounding environment when 24 volt supply is activated. No manual adjustments are required.

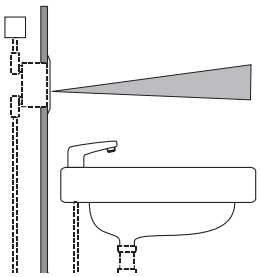
Start-up mode will take approximately five (5) minutes to complete its cycle and is important that no non-permanent target is present at this time. A continuous red light visible in Sensor Window indicates Sensor is in the start-up mode. If the red light is flashing, this indicates that the sensor is picking up a target. Unless this target is a permanent fixture in the Sensor's environment (i.e., a wall or stall door), it must be removed from the view of the Sensor. If this target is permanent, the Sensor will adapt itself around this target. In this case, the start-up mode may take up to 10 minutes. When the start-up cycle is completed, there will be no light visible in the Sensor Window.

Note: *If 24 volt power supply is interrupted at any time for more than fifteen (15) seconds, the start-up mode automatically repeats itself when power is restored.*

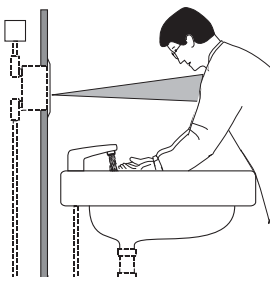
When Indicator Light flashes three (3) times slowly, three (3) times rapidly and again three (3) times slowly and continually repeats this signal, this indicates incorrect wiring or a short in the 24 volt supply.

OPERATION

1. A continuous invisible beam of infrared light is emitted from the OPTIMA Sensor.

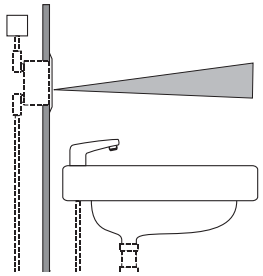


2. As the user enters the beam's effective range, 25 to 45 inches (635 mm to 1143 mm), the beam is reflected into the OPTIMA's Scanning Window and activates a two-second time delay circuit. When the delay is completed, the output circuit activates the Solenoid Valve allowing tempered water to flow from the Spout into the sink.



3. When the user steps away from the OPTIMA Sensor, the loss of reflected light initiates an electrical signal that releases the Solenoid Valve, shutting off the water flow. The circuit then automatically resets and is ready for the next user.

   The Faucet will run as long as the Sensor is activated. If specified with the EL-1500-LL-T Sensor, the Faucet will shut off after 30 seconds of continuous operation.



CARE AND CLEANING OF CHROME AND SPECIAL FINISHES

DO NOT use abrasive or chemical cleaners to clean Faucets as they 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.

While cleaning the bathroom tile, the Faucet should be protected from any splattering of cleaner. Acids and cleaning fluids will discolor or remove chrome plating.

TROUBLESHOOTING GUIDE

I. Faucet does not Function (red light does not appear when user steps in front of Sensor)
   - A. No power to Sensor. Make certain that power is on. Check Transformer, leads and connections. Repair or replace as necessary.
   - B. EL-1500-LL Sensor not operating. Replace EL-1500-LL Sensor.

II. Faucet does not Function (red light appears when user steps in front of Sensor and Solenoid does not click)
   - A. Debris in Solenoid; disassemble, clean and flush.
   - B. Solenoid not wired correctly; check Solenoid connections.
   - C. Solenoid problem; replace Solenoid.

III. No Water when Activated (valve clicks)
   - A. Make certain that water is turned on.
   - B. Valve clogged; clean or replace Filter.

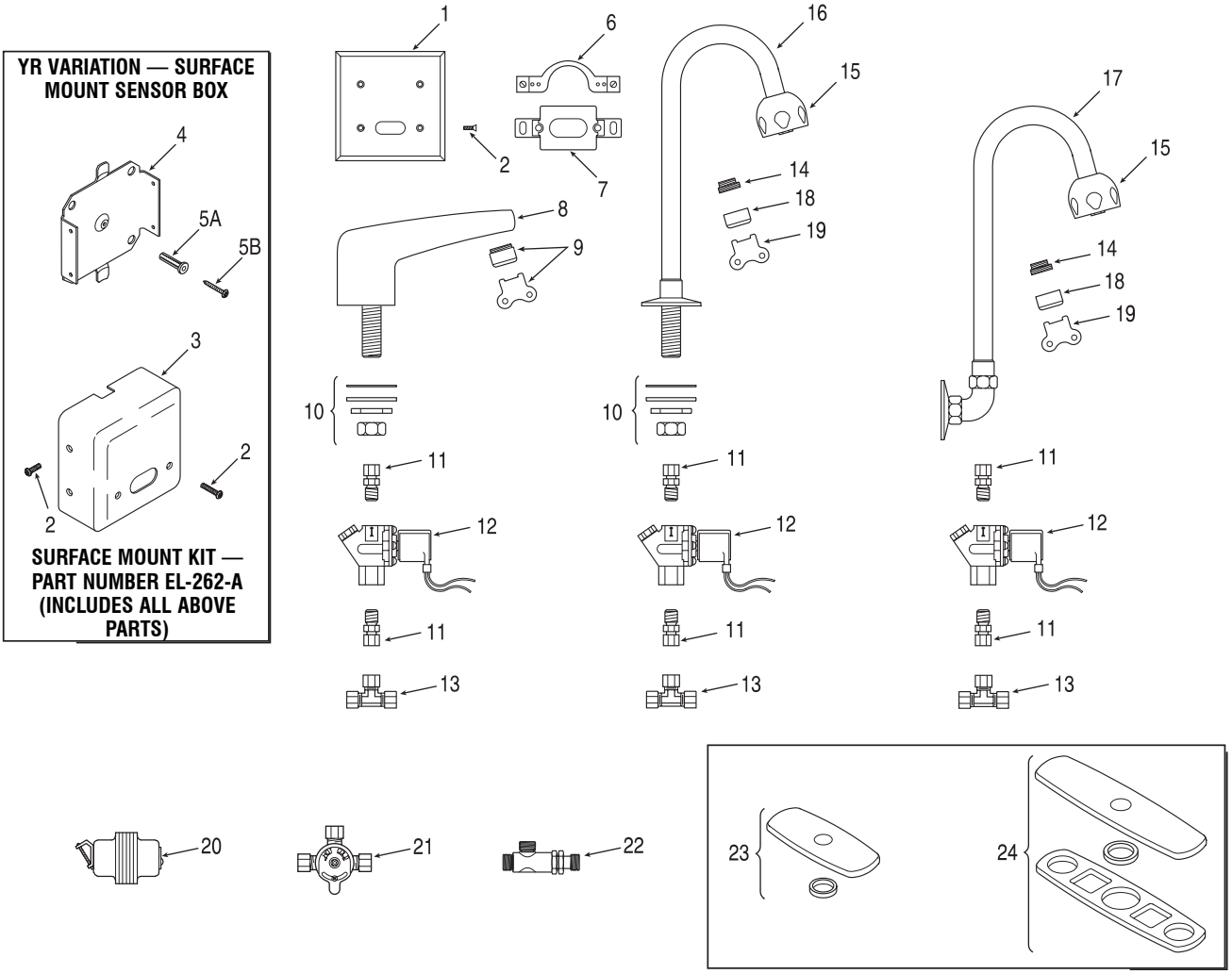
IV. Very Low Flow or Slow Dribble
   - A. Check supply stop(s); open if closed.
   - B. Debris in Filter; remove, clean and reinstall.
   - C. Debris in Aerator or Spray Head; remove, clean and reinstall.
   - D. Disassemble Solenoid; clean and flush.

V. Continues to Run (with power on and red light flashing)
   - A. Non-permanent target in range after user leaves. Remove non-permanent target. If this target is a new permanent target (i.e., a new wall or partition), turn off 24 volt power for fifteen (15) seconds. Turn power back on and let the Sensor complete start-up mode.
   - B. Sensor failure; replace Sensor.

VI. Continues to Run (even with power disconnected)
   - A. Solenoid Valve installed backwards.
   - B. Debris in Solenoid, won't close properly; remove Operator and clean. Reassemble in the same manner.

If further assistance is required, please contact the Sloan Valve Company Installation/Engineering Department at 1-888-SLOAN-14 (1-888-756-2614).

PARTS LIST



Item No.	Part No.	Description
1	EL-161	Cover Plate
2	EL-152	Cover Plate Screws
3	EL-236	Sensor Box (YR Variation)
4	EL-242	Wall Mounting Plate (YR Variation)
5A	K-57	Anchor (YR Variation)
5B	K-44	Screw (YR Variation)
6	EL-168-A	Yoke Assembly
7	EL-1500-LL	OPTIMA Sensor
	EL-1500-LL-T	OPTIMA Sensor with 30 Second Time Out
8	ETF-595-A	ELF-10 Lavatory Faucet Spout
9	ETF-1023-A	Spray Head, 0.5 gpm (1.9 Lpm), with Key
	ETF-1024-A	Aerator, 2.2 gpm (8.3 Lpm), with Key
	ETF-1029-A	Spray Head, 2.2 gpm (8.3 Lpm), Laminar Flow
10	EL-310-A	Mounting Hardware Kit (ELF-10 and ESF-20 only)
11	ETF-61	3/8" Male Compression Fitting
12	ETF-1004-A	Solenoid Valve, 24 VAC
13	ETF-617-A	3/8" Bak-Chek® Tee Compression Fitting
14	ETF-178	Aerator Adapter (ESF-20 and ESF-30 only)
15	AC-55-A	Spray Head
16	AC-92-A	Deck-Mounted Gooseneck Faucet
	AC-93-A	Deck-Mounted Surgical Bend Faucet

Item No.	Part No.	Description
17	AC-97-A	Back-Mounted Gooseneck Faucet
	AC-94-A	Back-Mounted Surgical Bend Faucet
18	ETF-1021-A	Spray Head, 0.5 gpm (1.9 Lpm)
	ETF-1022-A	Aerator, 2.2 gpm (8.3 Lpm)
	ETF-1027-A	Spray Head, 2.2 gpm (8.3 Lpm), Laminar Flow
19	ETF-435	Key
20	EL-154	Transformer (**Note:** Other Transformers available — consult factory)
21	MIX-60-A	Optional Mechanical Mixing Valve (BDM Variation)
22	MIX-135-A	Optional Thermostatic Mixing Valve (BDT Variation)
23	ETF-312-A	Optional 4" Trim Plate Kit
24	ETF-431-A	Optional 8" Trim Plate Kit

SURFACE MOUNT KIT (YR VARIATION)

EL-262-A (Includes Part Numbers 2, 3, 4, 5A and 5B)

SOLENOID VALVE REPAIR KIT

ETF-1009-A (Includes Replacement Filter)

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

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