

INSTALLATION INSTRUCTIONS FOR SLOAN CX SENSOR CLOSET AND URINAL FLUSHOMETERS



Sensor Closet Flushometers CX 8158-1.6

Sensor Urinal Flushometer

CX 8198-0.5 CX 8198-0.25

LIMITED WARRANTY

Sloan Valve Company warrants its flushometer to be made of first class materials, free from defects of material or workmanship under

CX 8158-1.28

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 (3) years (one year for special finishes) from the date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts that 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 that purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale. This warranty does not cover the life of batteries.

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

PRIOR TO INSTALLATION

ing for the fixture and valve. This valve is designed for a minimum 6-1/2 inch (165 mm) wall space depth. Distance from the center of the valve (inlet or outlet pipe) to the finished surface of the wall can vary from 3-1/4" - 4-1/4" (83 - 108 mm).

This valve is designed for new construction or where there is easily accessed plumb- Wall plate opening must be a minimum of 7-3/8" wide x 8-3/8" tall (187 mm wide x 213 mm tall) to maximum 7-5/8" wide x 8-5/8" tall (194 mm wide x 219 mm tall). Mud plate is provided and must accompany valve for proper installation. Mud plate is removed after wall is finished.

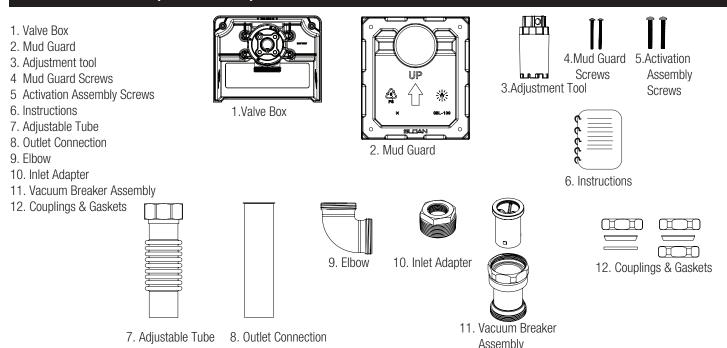
TOOLS AND ITEMS REQUIRED FOR INSTALLATION (PROVIDED)

• 5/64" hex wrench • Wall plate depth guide • Adjustment tool

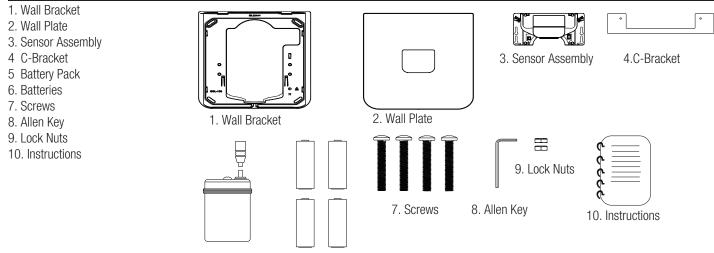
TOOLS AND ITEMS REQUIRED FOR INSTALLATION (NOT PROVIDED)

- Smooth-jawed wrench (at least 2") Philips screwdriver threaded sweat solder adapter
- approximately 15"-18" pipe

ITEMS INCLUDED (VALVE BOX)



ITEMS INCLUDED (WALL PLATE BOX)



5. Battery Pack 6. Batteries

IMPORTANT:

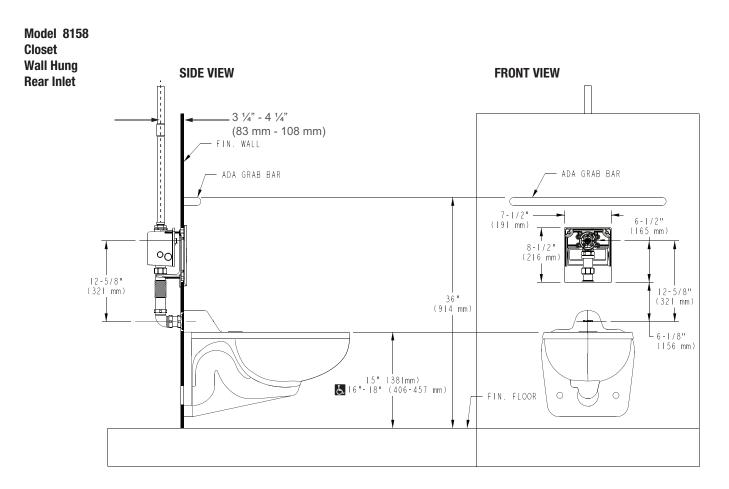
- INSTALL ALL PLUMBING IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.
- WATER SUPPLY LINES MUST BE SIZED TO PROVIDE AN ADEQUATE VOLUME OF WATER FOR EACH FIXTURE.
- FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.

Sloan's flushometers are designed to operate with 20 to 80 psi (138 to 552 kPa) of water pressure. THE MINIMUM PRESSURE REQUIRED TO THE VALVE IS DETERMINED BY THE TYPE OF FIXTURE SELECTED.

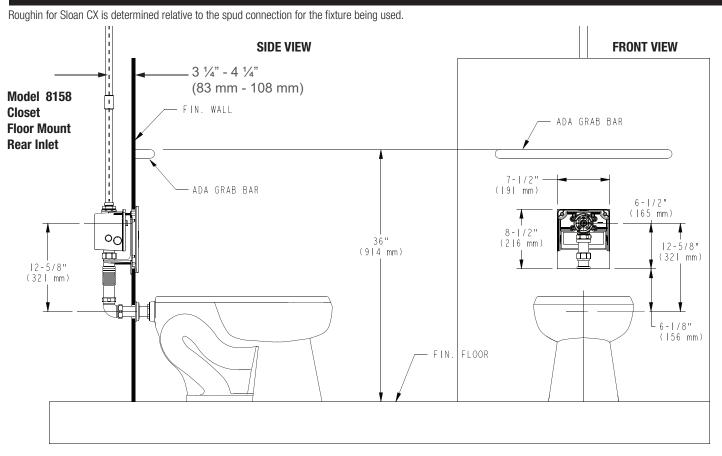
Consult fixture manufacturer for minimum pressure requirements. Most Low Consumption water closets (1.6 gpf/6.0 Lpf) require a minimum flowing pressure of 25 psi (172 kPa).

ROUGH-IN CLOSETS

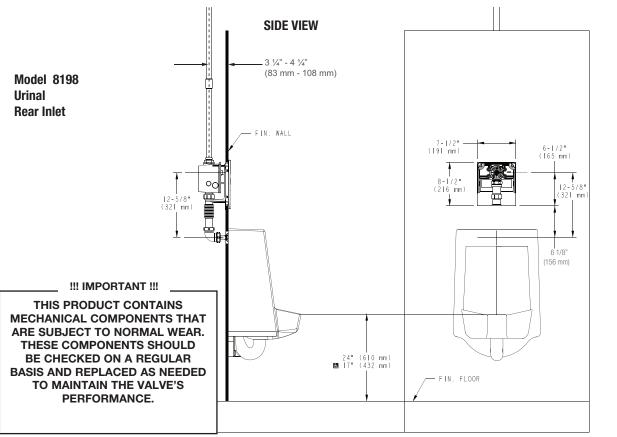
Roughin for Sloan CX is determined relative to the spud connection for the fixture being used.



ROUGH-IN CLOSETS

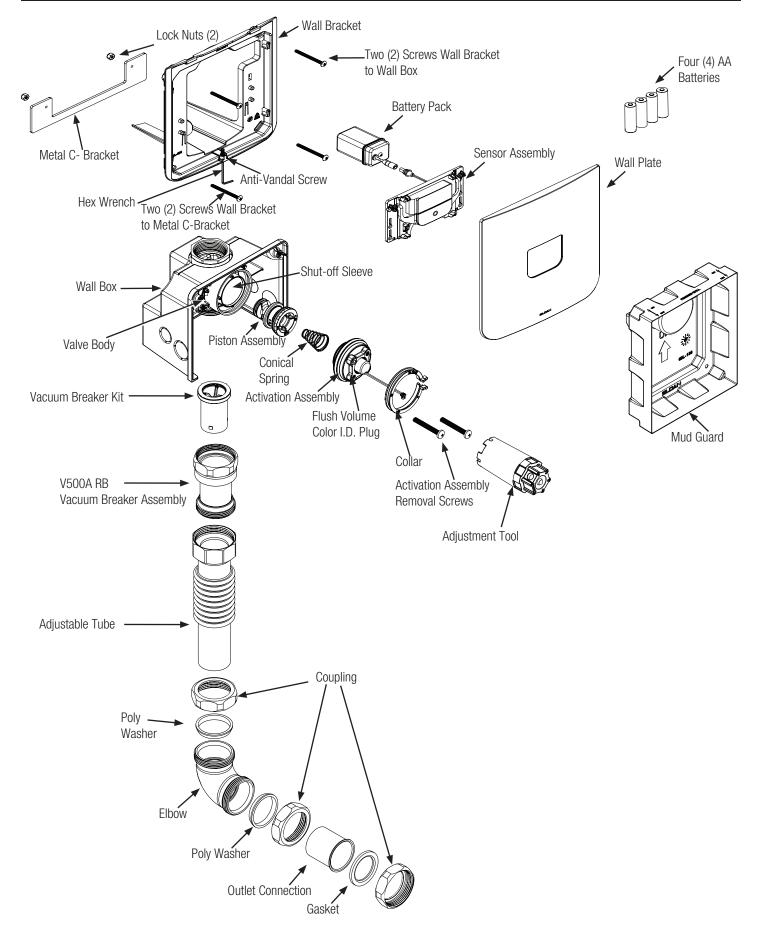


ROUGH-IN URINALS



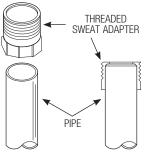
FRONT VIEW

PARTS OVERVIEW



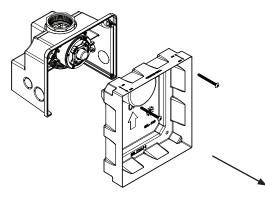
INSTALL OPTIONAL SWEAT SOLDER ADAPTER (ONLY IF YOUR SUPPLY PIPE DOES NOT HAVE A MALE THREAD)

Α On a 15"-18" length of pipe (not provided), slide threaded sweat adapter (not provided) onto water supply pipe until end of pipe rests against shoulder of adapter. Sweat solder the adapter to pipe (1" copper x 1" NPT fitting).





Remove mud plate from valve and save for later use-DO NOT DISCARD

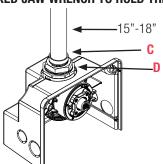


Insert threaded adapter into 1 1/2" to 1" threaded adapter (provided). С

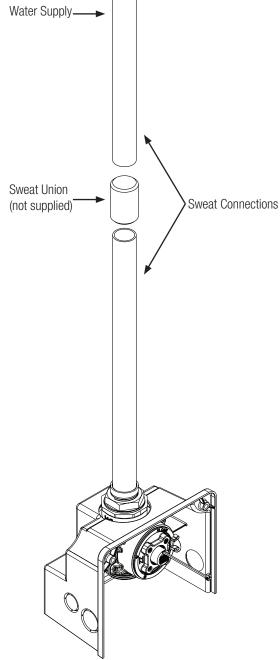
Connect 1 1/2" to 1 " adapter into top of flushometer ("IN"), Tighten fittings securely into valve body with a fixed jaw wrench. NOTE: DO NOT EXERT FORCE ON WALL BOX TO TIGHTEN FLUSHOMETER. USED FIXED JAW WRENCH TO HOLD THE VALVE.

For hardwire Ε use only: remove wall box knock/ cap closest to the conduit connection.

D



E) Using a sweat union (not supplied), connect valve assembly to water supply pipe.



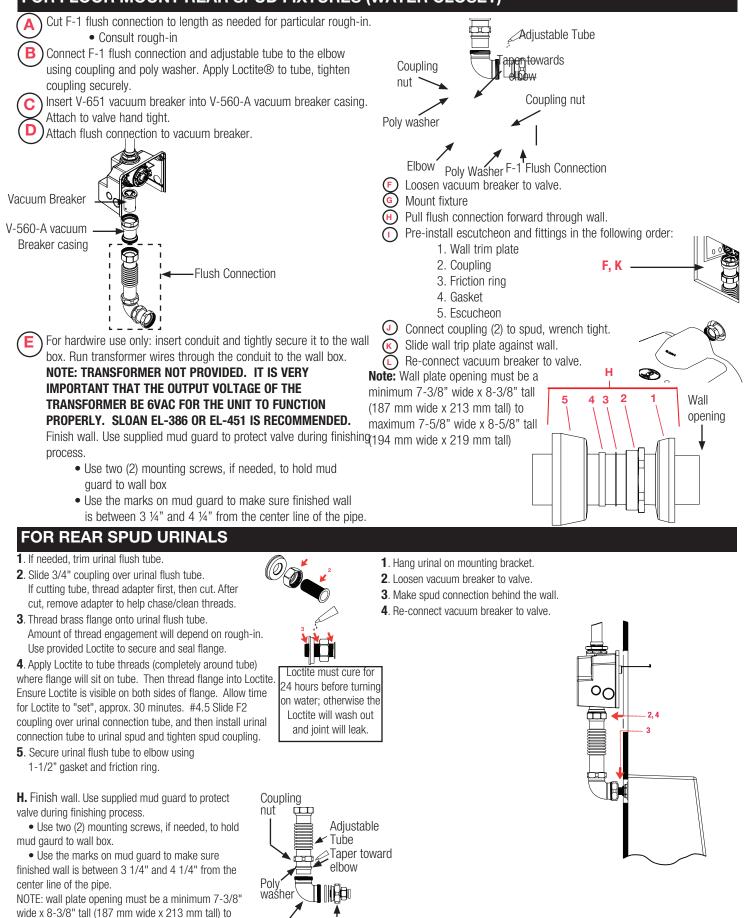
CONFIGURE VACUUM BREAKER AND FLUSH CONNECTION AND CONNECT TO VALVE

If needed, trim bottom of adjustable tube using cutter

Δ

- NOTE: would only be needed for certain ADA water closet installations.
- Insert V-651 vacuum breaker into V-560-A vacuum breaker casing. Attach to valve hand tight.
- Consult rough-in guide (page 2-3) Attach flush connection to vacuum breaker. В As needed based on rough-in, pre-bend the adjustable tube to account for side-to-side misalignment of water supply pipe relative to fixture spud. Vacuum Breaker V-560-A vacuum Breaker casing Flush Connection В For hardwire use only: insert conduit and tightly secure it to the wall G box. Run transformer wires through the conduit to the wall box. NOTE: TRANSFORMER NOT PROVIDED. IT IS VERY Cut as needed IMPORTANT THAT THE OUTPUT VOLTAGE OF THE TRANSFORMER BE 6VAC FOR THE UNIT TO FUNCTION PROPERLY. SLOAN EL-386 OR EL-451 IS RECOMMENDED. Finish wall. Use supplied mud guard to protect valve during finishing Η FOR WALL HUNG REAR SPUD FIXTURES process (WATER CLOSETS) • Use two (2) mounting screws, if needed, to hold mud guard to wall box Cut F-1 flush connection to length as needed for particular rough-in. • Use the marks on mud guard to make sure finished wall • Consult rough-in is between 3 1/4" and 4 1/4" from the center line of the pipe. Connect F-1 flush connection and adjustable tube to the elbow Note: Wall plate opening must be a minimum 7-3/8" wide x 8-3/8" using coupling and poly washer. Apply Loctite® to tube, tighten tall (187 mm wide x 213 mm tall) to maximum 7-5/8" wide x coupling securely. 8-5/8" tall (194 mm wide x 219 mm tall) Loosen vacuum breaker to valve. Partially mount fixture onto carrier bolts. Pull flush connection forward through wall. Make spud connection wrench tight. • NOTE: Space permitting or chase present, spud Adjustable Tube connection can be made behind wall. Push fixture back to wall. Tighten carrier bolts and complete fixture installation. Taper towards F Re-connect vacuum breaker to valve. Coupling elbow nut Coupling nut A. F Poly washer Elbow Taper towards elbow F-1 Flush Connection Polv washer

FOR FLOOR MOUNT REAR SPUD FIXTURES (WATER CLOSET)



Coupling nut

Elbow

maximum 7-5/8" wide x 8-5/8" (194 mm wide x 219

mm tall).

FLUSHING WATER LINES

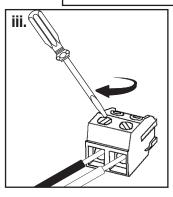
Note: Valve is shipped with flow adjustment turned off. Requires sensor assembly. Ensure water is shut off: use adjustment tool to turn activation Using adjustment tool, turn Α assembly fully clockwise. activation assembly counter clockwise to open flow of water through the valve. Verify valve is not pressurized В i. connect solenoid to sensor assembly. ii. Connect battery pack. iii. Press override button. Once lines are flushed clear, turn activation assembly clockwise to Disconnect Solenoid from Sensor assembly shut off water. Press in activation assembly. D Squeeze tabs on Collar and pull Push in activation assembly. out. Squeeze tabs on Collar and pull out. Attached provided screws to activation assembly. Pull to remove assembly Reinstall piston. Insert smaller sized end first until fully seated. Reinstall conical spring, small end first, into piston. Remove conical spring. Do not G discard! Reinstall activation assembly and press until fully seated. н Remove piston assembly by Reinstall orange collar securely. Collar will spin freely in valve body S pulling straight out. If unable to (H) when properly installed. grip piston, remove screw from G activation assembly and insert Т Adjust flow rate of valve as described in Section ADJUSTING FLOW into center hole of piston. Reinstall activation assembly and press until fully seated. Remove screws. Reinstall Collar. Collar will J spin freely in valve body when properly installed.

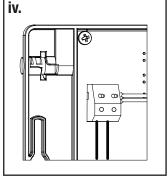
INSTALL WALL PLATE ASSEMBLY

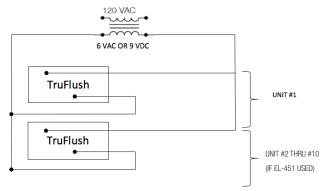
For Hardwire connection use.

- i. Using a wire stripper strip the two wire transformer connection from the conduit.
- ii. Insert the wire to the Blue Terminal Block provided with the Sensor Assembly
- iii. Tighten the terminal block screws using a flathead screwdriver 0.118" (3 mm) or smaller.
- iv. Connect the Blue terminal block to the two pins in the back of the Sensor Assembly.

IMPORTANT: SURGE PROTECTOR BEFORE THE TRANSFORMER IS RECOMMENDED

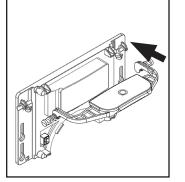


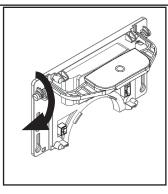




!!! NOTE !!!

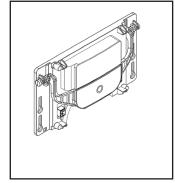
THE SENSOR ASSEMBLY COMES WITH THE BUTTON ALREADY INSTALLED. IN CASE THE BUTTON HAS COME OFF FROM THE SENSOR ASSEMBLY DURING SHIPMENT, INSTALL IT FOLLOWING THE FIGURE BELOW.





One EL-386 Transformer (sold separately) serves one (1) CX Closet/ Urinal flushometer.

One EL-451 Transformer (sold separately) serves up to (6) TruFlush with 20 gauge wire within 50 feet



INSTALL WALL PLATE ASSEMBLY (CONT.)

В

Assemble C-Bracket to the wall bracket using two (2) 2" long screws.Make sure screws are sticking out only about 1" behind the C-Bracket.

Tighten two (2) locking nuts to the screws about 1/4" away from tail of the screws.



Rotate wall bracket slightly about vertical axis and slide C-Bracket behind the finished wall while holding the top of the wall bracket. Once C-bracket is behind the wall, align top two (2) holes on the bracket to the wall box and secure in place using two (2) 2" long screws. Tighten the bottom two (2) screws on the bracket.



Α

B

С

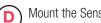
Make sure the wall bracket is positioned plumb and level before tightening the screws completely.

INSTALL BATTERY BOX AND SENSOR ASSEMBLY

The Sloan CX sensor assembly is designed to work with both hardwire and battery as a back-up or only the battery power connection

Install the supplied batteries into the battery box. Insert the Battery Box on the right side of the flushometer as shown.

Connect Battery Box D-shape connector to Sensor assembly. NOTE: RED LED WILL START BLINKING WHEN POWER IS CONNECTED TO THE SENSOR ASSEMBLY.



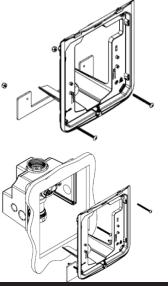
Mount the Sensor Assembly to the wall bracket.

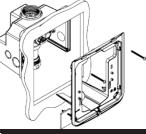
i. Aligned the four (4) slots on the sensor assembly with the mounting pegs on the wall bracket.

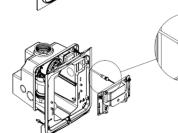
ii. Slide the sensor Assembly all the way down.

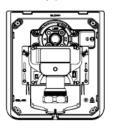


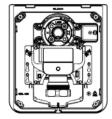
Insert flushometer solenoid connector to the sensor assembly.

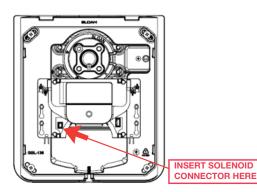












SENSOR OPERATION

В

After power is applied, the Sensor Module will perform its Start-up routine for 15 seconds with LED blinking. NOTE: A three (3) seconds long Red LED, followed by slow Red LED blinking in the Sensor Window indicates sensor is in the start-up mode. There will be two (2) Red LED pulses (each two (2) seconds long) in the Sensor Window to indicate the start-up routine is complete.

After the start-up routine is complete, in the first ten (10) minutes of operation, a visible Red LED flashes in the Sensor Window of the CX Flushometer when a user is detected.

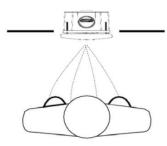
TEST SENSOR OPERATION

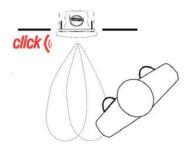
The CX Flushometer has a factory set sensing range:

i. Water Closet Models – 22" to 31" (559 mm to 787 mm)

- ii. Urinal Models 9" to 21" (229 mm to 533 mm)
- Test sensor by stepping in front of the sensor for 10 seconds.

After 10 seconds step away from the sensor and listen for a "CLICK" The factory setting should be satisfactory for most installations. If a range adjustment is required, refer to the range adjustment instructions in this installation guide (See page 13).





ADJUST WATER FLOW

Flushometer is shipped with the flow control adjustment turned OFF.

Disconnect Flushometer Solenoid connector from the Sensor Assembly

Lift the Sensor Assembly Override Button up to access the activation assembly.

Open water flow by turning activation assembly slowly COUNTERCLOCKWISE using

adjusting tool and a screwdriver or a wrench.

MAKE SURE SOLENOID CONNECTOR GOES THROUGH THE CENTER OF THE ADJUSTING TOOL TO AVOID DAMAGE TO THE CABLE.

Connect Flushometer Solenoid connector to the Sensor Assembly.

Activate Flushometer by pressing the Override Button.

Adjust Activation Assembly after each flush until the flow rate delivered properly cleanses the fixture (turn CLOCKWISE to lessen flow and COUNTERCLOCKWISE to increase flow).

!!! NOTE !!!

MAKE SURE FLUSHOMETER SOLENOID CONNECTOR IS DISCONNECTED FROM SENSOR ASSEMBLY EVERY TIME BEFORE ROTATING ACTIVATION ASSEMBLY.

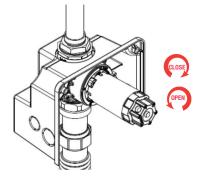
UNDER NO CIRCUMSTANCES SHOULD THE SOLENOID BE REMOVED OR ADJUSTED.

- !!! IMPORTANT !!! -

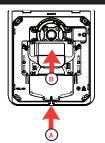
THE FLUSHOMETER IS ENGINEERED FOR QUIET OPERATION. EXCESSIVE WATER FLOW CREATES NOISE, WHILE TOO LITTLE WATER FLOW MAY NOT SATISFY THE NEEDS OF THE FIXTURE. PROPER ADJUSTMENT IS MADE WHEN PLUMBING FIXTURE IS CLEANSED AFTER EACH FLUSH WITHOUT SPLASHING WATER OUT FROM THE LIP AND A QUIET FLUSHING CYCLE IS ACHIEVED.

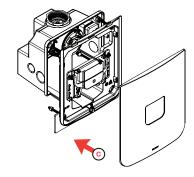
III IMPORTANT III

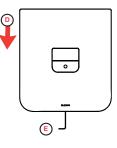
THE ACTIVATION ASSEMBLY SHOULD NEVER BE OPENED TO THE POINT WHERE THE FLOW FROM THE VALVE EXCEEDS THE FLOW CAPABILITY OF THE FIXTURE. IN THE EVENT OF A VALVE FAILURE, THE FIXTURE MUST BE ABLE TO ACCOMMODATE A CONTINUOUS FLOW FROM THE VALVE.



INSTALL WALL PLATE







- Make sure retaining screw on bracket is fully tightened
 - Slide Sensor Assembly all the way up.
 - Align Wall Plate cut out with the window and Override Button of Sensor Assembly and
 - push Wall Plate all the way in.
 - i.Make sure sensor window and button are sitting inside the wall plate cut out.

В

С

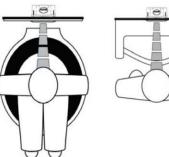
В

- Slide Wall Plate all the way down.
- Unscrew the retaining screw using supplied Allen key until it touches wall plate.
- Make sure Wall Plate doesn't slide up.

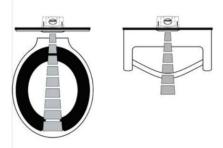
DO NOT UNSCREW ANYMORE ONCE SCREW TOUCHES WALL PLATE.

OPERATION

- A continuous, INVISIBLE light beam is emitted from the Sloan CX Sensor.
- After the user enters the beam's effective range, 22 to 31 inches (559 mm to 787 mm) for closet installations and 9 to 21 inches (381 mm to 762 mm) for urinal installations for ten (10) seconds the flushometer is armed.



When the user steps away, the sensor initiates a "one-time" signal that activates the flushing cycle to flush the fixture (1 second delay for urinal, 3 seconds delay for closet). The Circuit automatically resets and is ready for the next user.



RANGE ADJUSTMENT (ADJUST ONLY IF NECESSARY)

The Sloan CX Flushometer has a factory set sensing range: Water Closet Models - 22" to 31" (559 mm to 787 mm) Urinal Models - 9" to 21" (229 mm to 533 mm) The Factory setting should be satisfactory for most installations. If the range is too short (i.e. not picking up users) or too long (i.e., picking up opposite wall or stall door) the range can be adjusted.

NOTE: WATER DOES NOT HAVE TO BE TURNED OFF TO ADJUST RANGE.

Make sure to remove all the non-permanent targets in sensor view area.

) Push Override button for 20-30 seconds.

The Red LED in the sensor window starts slow blinking.

Release the button during the LED blinking.

The CX will enter into distance setting mode.

The setting mode will run for one minute.

_ !!! IMPORTANT !!! .

WHEN ADJUSTING RANGE FOR CLOSET SENSOR, MAKE SURE THE CLOSET DOOR IS ALL THE WAY CLOSED FOR PROPER RANGE ADJUSTMENTS.

WHEN ADJUSTING RANGE FOR URINAL SENSOR, MAKE SURE TO SET-UP A PROPER TARGET IN FRONT OF URINAL SENSOR FOR PROPER RANGE ADJUSTMENTS

BASIC SERVICING

A. Remove wall plate.

Α

В

- **Note:** water can be shut-off without removing wall plate. Removal of plate provides more hand room for servicing valve and accessing flush connection. i. Tighten the retaining screw at the bottom of wall plate using Allen Key
 - ii.Slide wall plate up, then pull out.
- B. Disconnect flushometer solenoid connector from the sensor assembly.

C. Shut off water: use adjustment tool to turn activation assembly fully clockwise. Pass solenoid wire through center of tool to avoid damage. Remove tool when closed.

- D. Reconnect the sensor assembly to the solenoid. Press override button to relieve pressure. Disconnect solenoid.
- E. Push in activation assembly until fully seated.

F. Squeeze tabs on Collar and pull out.

G. Attach provided screws to activation assembly. Pull to remove assembly.

DO NOT TURN THE ASSEMBLY TO AVOID TURING WATER FLOW BACK ON. DO NOT REMOVE OR ADJUST THE SOLENOID.

H. Remove conical spring. Do not discard!

- I. Remove piston assembly by pulling straight out. If unable to grip piston, remove screw from activation assembly and insert into center hole of piston.
- J. Reinstall or replace piston. Insert smaller sized end first until fully seated.
- K. Reinstall or replace conical spring, small end first, into piston.
- L. Reinstall or replace activation assembly and press until fully seated.
- **M.** Reinstall orange safety ring securely. Safety ring will spin freely in valve body when properly installed.
- **N.** Using adjustment tool, slowly turn the activation assembly counterclockwise to open flow.
- **0.** Adjust flow as described on page 11.

P. Install wall plate as described on page 12.

TROUBLESHOOTING

A. Sensor Flashes Continuously Only When User Steps Within Range.

i. Unit in Start-Up mode; no problem. This feature is active for the first ten (10) minutes of operation.

B. Valve Does Not Flush; Sensor Not Picking Up User.

i. Range too short; increase the range.

C. Valve Does Not Flush; Sensor Picking Up Opposite Wall or Surface, or Only Flushes When Someone Walks By. Red Light Flashes Continuously for First 10 Minutes Even with No One in Front of the Sensor.

i. Range too long; shorten range.

D. Valve Does Not Flush Even After Adjustment.

i. Ensure water supply to valve is turned on.

- ii. Activation Assembly sleeve is in closed position. Turn counterclockwise to open water flow.
- iii. Batteries completely used up; replace batteries.
- iv. Problem with activation assembly; replace activation assembly.

v. Problem with Sensor Assembly; replace Sensor Assembly.

E. Red Light Blinks four (4) Times When User Steps Within Range (Battery Only).

i. Batteries low; replace batteries.

F. Red Light Blinks four (4) Times When User Steps Within Range (Hardwire and Battery).

i. Battery box not connected; connect battery box to sensor assembly.

ii. Batteries low; replace batteries.

G. Valve Does Not Shut off.

i. Metering bypass hole in piston is clogged. Remove the piston O-ring from groove and wash under clean running water. Replace piston if cleaning does not correct the problem.

ii. Supply line water pressure has dropped and is not sufficient to close the valve. Close Activation Assembly until pressure is restored.

iii. Piston is damaged. Replace with new proper gpf/Lpf piston.

H. Too much water to Fixture.

- i. Activation Assembly not adjusted properly. Readjust Activation Assembly.
- ii. Piston is damaged. Replace with new proper gpf/Lpf piston

iii. Wrong CX model installed; i.e., 1.6 gpf. model installed on 0.5 gpf/1.9 Lpf or 0.25 gpf/1.0 Lpf urinal fixture. Replace with proper CX model per guide.

I. Not enough water to Fixture.

i. Activation Assembly not adjusted properly. Readjust Activation Assembly by turning counterclockwise.

- ii. Wrong CX model installed; i.e. 0.5 gpf. urinal installed on 1.6 gal. closet fixture. Replace with proper CX model.
- iii. Water supply pressure is inadequate (low). Increase the water supply pressure. Contact the fixture manufacturer for minimum water supply requirements of the fixture.

J. Chattering noise is heard during flush.

i. Reduce flow pressure by turning Activation Assembly.

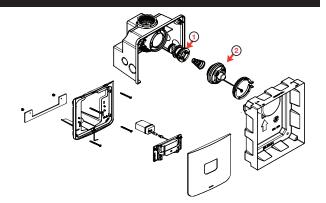
CARE AND CLEANING

DO NOT use abrasive or chemical cleaners (including chlorine bleach) to clean Flushometers that may dull the luster and attack the chrome or special decorative finishes. Use ONLY mild soap and water, then wipe dry with clean cloth or towel. While cleaning the bathroom tile, protect the Flushometer from any splattering of cleaner. Acids and cleaning fluids will discolor or remove chrome plating.



REPAIR ITEMS

Ite	m No.	Part No.	Description
	1	See Table	Piston Assembly
	2	See Table	Activation Assembly



PISTON ASSEMBLY SELECTION GUIDE Code No. Description Piston Color*

3340053	1.6 gpf/6.0 Lpf closet activation assembly	Green
3340054	1.28 gpf/4.8 Lpf closet activation assembly	Purple
3340055	0.5 gpf/1.9 Lpf urinal activation assembly	Red
3340056	0.25 gpf/1.0 Lpf urinal activation assembly	Burgundy



ACTIVATION ASSEMBLY SELECTION GUIDE

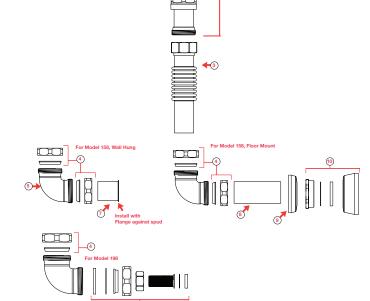
Code No.	Description	Plug Color*
3340048 1.6 gpf/6.0 Lpf closet activation assembly		Green
3340049	1.28 gpf/4.8 Lpf closet activation assembly	Purple
3340051 0.5 gpf/1.9 Lpf urinal activation assembly		Red
3340052 0.25 gpf/1.0 Lpf urinal activation assembly		Burgundy



* Colors may differ. Consult factory to confirm you have the correct piston assembly.

FLUSH CONNECTION PARTS

Item	Code No.	Description	
1	0323011	V-500A Vacuum Breaker	
2	0323279	Short Vacuum Breaker Tube	
3	0306394 Adjustable Tube		
4	0306395	Poly Washer Coupling (set of two)	
5	0306392PK	Elbow	
6	3306002	1-1/2" Coupling with S-21 Gasket	
7 0306031P0		1 1/2" (38 mm) Flanged outlet tube RB, 6"	
8	0396669PK	F-102 1-1/2" (38 mm) Outlet Tube CP 8"*	
9	0306238PK	F-7 Flange CP*	
10	0306146PK	F-5-A 1-1/2" Spud Coupling Assembly CP*	
11	0306396	Urinal Connection	

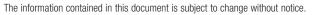


€1

(-2)

* Consult factory for alternate finish options

Manufactured in the U.S.A by Sloan Valve Company under one or more of the following patents: U.S. Patents. 5,295,655; 5,542,718; 5,558,120; 5,564,460; 5,730,415; 5,865,420; 5,887,848; 5,967,182. Other Patents Pending. Bak-Chek®, Para-flo®, PERMEX®, Turbo-Flo®



SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131

Phone: 1.800.982.5839 or 1.847.671.4300 • Fax: 1.800.447.8329 or 1.847.671.4380 • sloan.com COPYRIGHT © 2018 SLOAN VALVE COMPANY Code No: XXXXXXX – Rev. 1 (09/18)