

WILKINS®

FCIS/W1 Instruction Sheet Archive



FCIS/W1 Version 1B:
Pages 1 - 3



EST Box:
Pages 4 - 7

Smart Backflow Wireless Monitor

WILKINS®

Note: This product to be installed in an indoor, dry or damp location only.

Installation Instructions

CAUTION: Do not power unit until backflow preventer valve has been installed, pressurized and is stable.

CAUTION: Never lift the Endpoint Control Box User Interface Panel while the box is powered on.

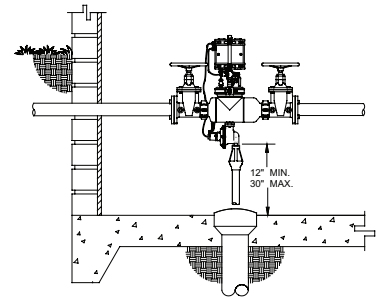
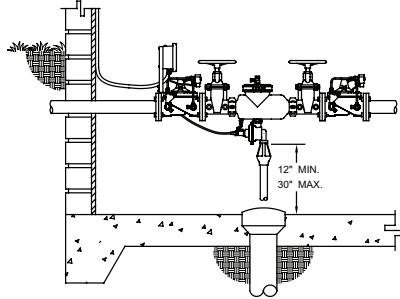
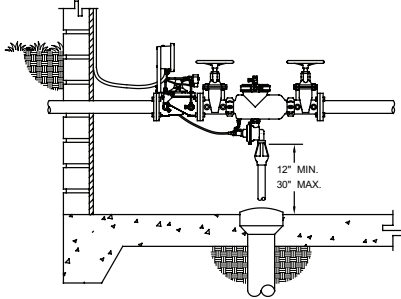
1. Install backflow preventer valve per Wilkins backflow preventer valve installation guide.

STANDARD MOUNTING

Electronics enclosure and electronics/sensors are pre-installed on the standard FCIS assembly.

On model FCIS, once the ZW206 and backflow preventer have been installed, route the yellow position sensor cable to the relief valve cover under the backflow preventer and screw it onto the matching receptacle on the relief valve cover.

Typical Installation



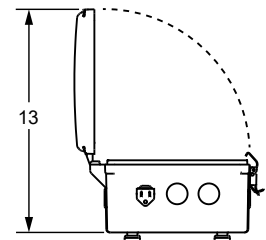
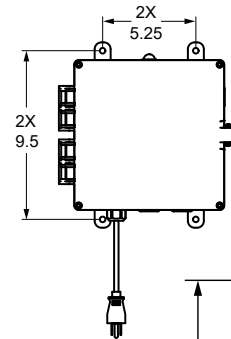
Single Water Shutdown

A single ZW206 Solenoid Control Valve to shutdown the water supply to the backflow preventer and system is our standard installation. This will prevent the discharge of water through a fouled first check.

Double Water Shutdown

Two ZW206 Solenoid Control Valves to isolate the Reduced Pressure Backflow Assembly on both the inlet and outlet. A second ZW206C installed downstream will prevent water discharge due to a fouled second check.

Endpoint Control Box for Connected Backflow Version 1C (3707-BF-ENDP-1C)



PLACING THE DEVICE IN SERVICE

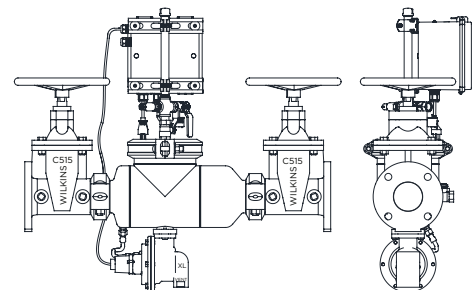
1. Pressurize the full assembly and allow it to stabilize before the endpoint is powered on.
2. After pressurizing the assembly, plug unit into a 120 VAC grounded outlet and wait approximately 30 seconds for the electronics to initialize. The green LED on the enclosure will turn on.

ALTERNATE MOUNTING INSTRUCTIONS

1. Remove electronics enclosure from Unistrut or brackets on ACV.
2. Locate mount hardware shipped with the electronics enclosure (taped to the side of the enclosure).
3. Install the wall mount brackets onto the electronics enclosure using the screws provided.
4. Position the enclosure on a wall 3' from the floor to the bottom of the enclosure in a secure area. The position of the enclosure must be within 3' of the backflow preventer valve and sensors.
5. Mount the enclosure to the wall with appropriate fasteners to meet the mounting application.
6. Refer to the "Placing the device in service" above.

Backflow Preventer with Wireless Monitoring – Model List *Sizes (2 1/2" - 10")
375ASTW1, 375AW1, 375W1

Model 375ASTW1 with NRS option



Features

Input: 120vac, 1.0amps max
24VDC output: 400 mA per channel
Replacement Fuse: 3.15 amp slow blow

Operation

The backflow relief valve monitor senses the position of the relief valve plunger. When the relief valve opens, an adjustable delay timer begins to count down. When the preset delay time is reached, the Endpoint Control box sends a signal to the automatic control valve (ACV) to shut down the water supply. The delay timer is factory set at 10 seconds, but can be adjusted either through the settings menu on the Endpoint Control Box, or through the Zurn connected products portal. External trigger switches (i.e. float switch, water sensor, etc) that provide contact closure can also be connected to turn off the water supply, and delay timer settings can be customized for each individual trigger. To test the function of the water shutoff, hold the ENTER button on the user interface panel for 3 seconds. The signal lamp will illuminate yellow while the timer counts down, and then red when the solenoid valve is triggered to close. Push the RESET button or power cycle the device to reset the ACV. Alarm contacts are also provided to send a shutdown signal to an alarm panel or building monitoring system. The device is also capable of transmitting data through BACnet over an ethernet connection.

Connections

The relief valve position cable is already attached to the Endpoint Control Box and connects to the black, composite cover attached to the backflow preventer relief valve. **Warning: All electrical connections should be made by qualified personnel.** To connect alternate triggers, pressure sensors, or alarm cables, first unplug the power cable to the box. Then, unscrew the two thumb screws holding the User Interface Panel in place. Swing the User Interface Panel upwards to access the terminals below. The two wires from alternate triggers that provide contact closure can be connected to the two terminals labeled TRIG A, TRIG B, and/or, TRIG C. Wiring for the ACV solenoid on the model FCIS should already be connected to the terminals labeled Valve 1, Valve 2, and/or, Valve 3. If adding another ACV, these terminals provide 24 VDC output and can only be used with solenoid valves provided by Zurn Wilkins specifically for FCIS installations. If a Solenoid Control Valve is to be converted from Normally Open to Normally Closed, or vice versa, the solenoid valve must be replaced, and the settings in the Endpoint Control Box must be adjusted accordingly. External alarms may be connected to the terminals labeled ALM1 and/or ALM2. These terminals provide contact closure only. BMS connectivity through BACnet can be achieved by plugging an ethernet cable into the port on the circuit board.

Warning: A solenoid shutoff valve should not be installed on a system that must be supplied with water at all times (i.e. a hospital, processing plant, etc.) unless a back-up supply is also installed. If water must remain on during a power failure, a normally open automatic control valve should be ordered.

If the downstream piping is above the backflow preventer, then a failed 2nd check could cause relief valve discharge to continue draining a system after the supply is off. For systems with large amounts of water, like a high-rise building, a single check valve or solenoid shutoff valve that works as a check valve should be installed after the backflow preventer.

Electronic Emission Notices

FCC Warning: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada (IC) Warning: This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicable aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The following information refers to Zurn Smart Connected Products:

Radiation Exposure Statement: To comply with FCC and Industry Canada RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 30mm from all persons and must not be operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

FCC Interference Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference intended for use in non-residential/non-domestic environments. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Zurn is not responsible for any radio or television interference caused by using other than specified or recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Responsible party: ZURN INDUSTRIES, LLC 511 W. Freshwater Way, Milwaukee, WI U.S.A. 53204 • Ph. 1-855-ONE-ZURN, Fax 919-775-3541

Model FCIS

Flood Control Integrated System (1 1/4" - 10")

WILKINS®

- ❑ Installation
- ❑ Start-up
- ❑ Testing
- ❑ Maintenance Instructions

Installation

Refer to ZW206 installation instruction and backflow preventer (975XL2, 375MS) installation instructions for specific information on these valves during install and startup.

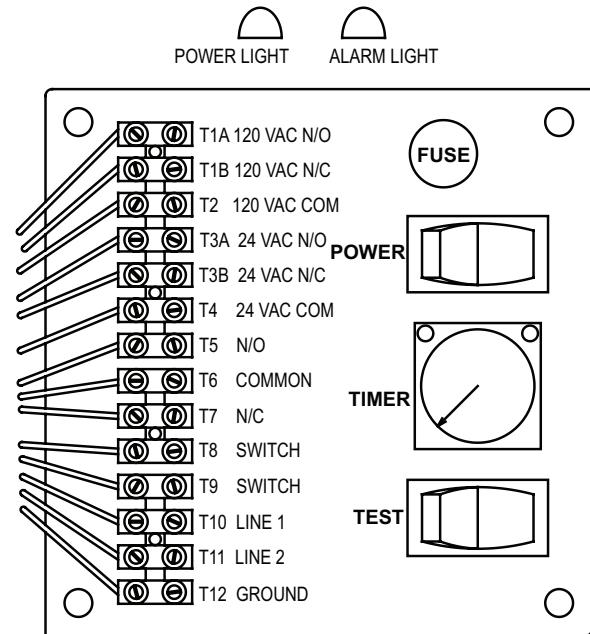
Flush line to remove all debris before installing any valve.

For ease of repair and maintenance, a shutoff valve should be installed upstream of the FCIS assembly if one is not conveniently located nearby. If a strainer is being installed, it should be located upstream of the Model FCIS.

Next the Model ZW206 solenoid control valve with EST mounted to cover should be installed. Note the direction of flow arrow on the inlet flange or inlet side of cover.

The backflow preventer is now installed downstream of the ZW206 and connected to the downstream piping. A gasket set, nipple or grooved coupling is provided to connect the ZW206 to the backflow preventer.

If necessary, an air gap adapter fitting can be installed to the relief valve discharge port to direct water to the drain. A drain MUST be installed in the room to remove discharged water. The Model FCIS will shutdown the water supply to prevent a catastrophic failure of the backflow preventer from flooding the room. It will not prevent small discharges from the relief valve. (A water sensor or float switch that provides contact closure during flooding can also shutdown the water if flooding is caused by other equipment in the mechanical room. Contact factory for details.)



The black wire on the EST should already be connected to the solenoid pilot. If it not, then the pilot coil should be plugged into the end of the black cable. The screw in the center of the plug should be tightened to prevent it from coming accidentally unplugged.

There is a yellow cable that comes from the EST. This should be uncoiled and connected to the black socket on the backflow preventer relief valve located below the backflow. Line up the keyway in the plug and socket, then push the plug into place. Next tighten the threaded lock ring at the end of the cable to the socket to prevent it from coming unplugged.

Start-up

The solenoid valve, backflow preventer, and water system can be filled and leak tested without having to wait for an electrician to connect power to the EST box.

The solenoid valve is furnished standard as normally open (NO.) This means the valve will open to allow water

flow unless power is applied to the solenoid. A normally closed (NC) solenoid valve is an option. To determine the type of valve you have, look at the ZW206 tag on the inlet flange. NO or NC should appear after the model number. If you have an NO valve, then the system can be filled by simply open the shutoff valve upstream of the FCIS.

WARRANTY: WILKINS Valves are guaranteed against defects of material or workmanship when used for the services recommended. If in any recommended service, a defect develops due to material or workmanship, and the device is returned, freight prepaid, to WILKINS within 12 months from date of purchase, it will be repaired or replaced free of charge. WILKINS' liability shall be limited to our agreement to repair or replace the valve only.

Start-up

Fill the system slowly to prevent water hammer, and then vent any trapped air from the system.

The solenoid valve cover must be vented of air for proper operation; refer to ZW206 instruction sheet.

There is a red knob on the solenoid pilot. This will allow the pilot valve of a NO or NC valve to be operated without power. If your valve is NC, then the solenoid control valve will prevent water from filling the backflow preventer. Turn the red knob on the solenoid pilot to manually open the valve and fill the system with water.

If the manual operator has been used on the solenoid pilot, make sure that it is returned to unscrewed position for the FCIS to operate properly.

If left for an extended duration in manual override, it may be wise to hang a note pointing this out to others who may continue the system startup and testing.

A ½" plugged conduit knockout is located on the bottom of the EST near the cables. The plug can be removed to allow 120 VAC power to be connected to terminals T10, T11 and T12 in the box. Once the power has been connected to the EST, then proceed to the Testing section.

Testing Procedures

DANGER!

Death or injury can result if safety precautions are not followed. There are 120VAC wires and connections located inside the EST box. Only properly trained personnel should work near these connections. If all wires are installed properly, there should be no risk of contact with energized components. Care should still be exercised. Do not use any screwdrivers or other un-insulated metal objects inside the box when the power wires in the box are energized.

There are three user controls inside the EST box. A power switch, a delay timer knob and a test switch. Open the EST box to access these controls.

SET TIMER DELAY

The timer is provided so that nuisance relief valve discharges due to water hammer will not cause the system to shutdown. It should be set so it is long enough for the valve to re-close if it opens for pressure fluctuations. If it is set too long, then more discharge will occur before shutdown starts.

The timer has a range up to 10 minutes, but comes from the factory set for a 1 second to 60 second range. When it leaves the factory, the indicator of the timer should be pointing directly to the left for a 10 second delay.

Turn the POWER switch on. The green power light on top of the box will light.

If the backflow is not pressurized, the monitor switch will start the timer. If the backflow is pressurized, manually start the timer by pushing and holding the TEST switch below the timer. A green light on the front of the timer should come on when it is triggered. You can start counting or use a stopwatch to check the timer adjustment. A red light on the front of the timer and on top of the box will come on when the timer reaches the end. The solenoid coil will also click and hum if it is a normally open valve. On a normally closed valve, the humming will stop; a click may not be audible. (When the timer is reset and the power turned back on, the normally closed valve should click.) If this time delay does not match your requirements, turn the knob and repeat this test. The timer is reset by turning the power switch off and back on. (Note: the coil will become hot while it is powered.)

Testing Procedures

TEST BACKFLOW MONITOR SWITCH

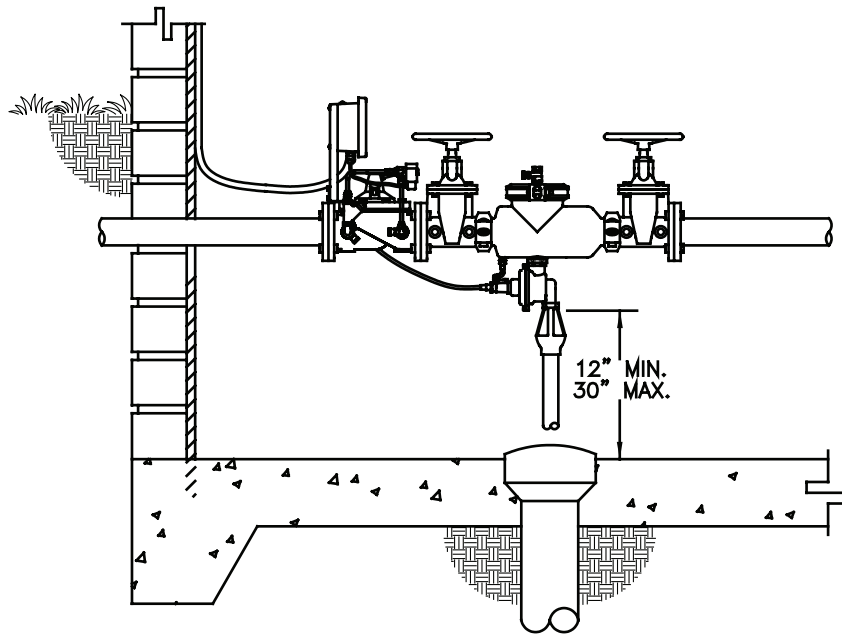
The EST should be open to monitor the lights on the timer during this test. Close the inlet shutoff valve to the backflow preventer. Slowly open the #2 test cock on the backflow preventer. It is located between the inlet shutoff valve and the cover of the backflow preventer. (It may be on the shutoff valve or on the body of the backflow preventer.) As the pressure in the valve drops below 5 psi, the relief valve located at the bottom will start to open and water will drain from the zone between the check valves in the backflow preventer. As it starts to open and discharge water, watch the timer in the EST. The green light will light when the monitor switch in the relief valve triggers. Following the time delay, the two red lights will come on and the ZW206 will start to shutdown.

The actual time for the ZW206 to close during an actual relief valve discharge depends greatly on the size of the valve, the water pressure, and the amount of water flowing

through the valve. It can be mere seconds or up to 2 minutes. You can verify the ZW206 closes by slightly opening the inlet shutoff valve to the backflow preventer. Trapped water will vent through the open #2 test cock and flow should stop.

Close the #2 test cock. Reset the EST by turning the power off and back on. If the shutoff valve is not open far enough to pressurize the backflow preventer during the time delay, the EST will time out and turn the water off again. On large systems, you can avoid this by noting the timer setting then adjusting the timer all the way clockwise. Once the backflow has been pressurized, adjust the timer back to the previous setting. Open the backflow inlet shutoff valve completely. Close the EST

The system is ready for operation.



Maintenance Instructions

MAINTENANCE

NOTICE: Annual inspection and maintenance is required of all plumbing system components. To ensure proper performance and maximum life, this product must be subject to regular inspection, testing and cleaning.

The EST function, timer setting, and backflow switch operation should all be checked annually by performing the two tests above. This will also allow you to see if the ZW206 is closing properly and tightly. Refer the individual instruction sheets for the ZW206 and backflow preventer for suggested maintenance on those valves.

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Responsible party: ZURN WATER, LLC 511 W. Freshwater Way, Milwaukee, WI U.S.A. 53204

- Ph. 1-855-ONE-ZURN, Fax 919-775-3541