

RESIDENTIAL INSTRUCTIONS

C3-100, C3-100-PFS, S3-100, S3-100-PFS, SS3-200, AND SS3-200-PFS

While delivering comfort and convenience, Advanced Conservation Technology (ACT, Inc.) is a global partner in conservation.





Installing the ACT D'MAND KONTROLS® Systems

Models C3-100, C3-100-PFS, S3-100, S3-100-PFS, SS3-200, and SS3-200-PFS

Installations shall be in accordance with the manufacturer's instructions per the requirements of the Uniform Plumbing Code (UPC)

Conforms to UL STD 508
Certified To CSA STD C22.2 #14

BE CAREFUL

Do not plug the power cord into an electrical outlet for more than 10 seconds until the System is installed and in place. Operation of the System without being plumbed into water lines may burn out the pump prematurely and void the warranty.

Attention Builders: Installed pumps connected to water will need to be activated and run through a cycle at least once every 30 days, or the pump impeller may seize in position. Contact ACT Inc. at (800) 200-1956 with questions on how to troubleshoot a pump if you suspect this has occurred.

Pre-Installation Checklist

1. Check the package contents. Refer to Pg. 14 for your Model number and its contents.

Note: Homes with Galvanized piping will need Galvanized T's. *(Please call 1-800-200-1956)*

2. Make sure you have the tools to do the job:

- Pipe wrench or adjustable crescent wrench
- Small Philips head screwdriver
- Drill, 5/8" drill bit and 3/16" drill bit.
- Teflon Tape or Pipe Dope
- Pliers or wire strippers (optional – Used to cut wires and/or strip insulation from wires)

Determine where you will install the ACT D'MAND KONTROLS® System:

Typically, a C3-100-PFS, S3-100-PFS, or SS3-200-PFS should be at the fixture farthest away from the water heater. The C3-100, S3-100, or SS3-200 will be installed on a dedicated return line near the water heater. If your hot water supply line runs in two separate directions from the water heater, you may need more than one ACT D'MAND KONTROLS® System to satisfy all your hot water requirements. **Caution:** The D'MAND KONTROLS® System may NOT be installed outdoors, or in an environment where water may contact the outside of the System.

Verify the ACT Inc. D'MAND KONTROLS® System works before installation:

- 1) Plug the ACT D'MAND KONTROLS® pump into ACT D'MAND KONTROLS® controller
- 2) Plug ACT D'MAND KONTROLS® controller into an electrical outlet.
- 3) Pump should begin running.
- 4) **When you have confirmed the System works, disconnect and continue with the normal installation.**



Getting to know the ACT D'MAND KONTROLS® controller



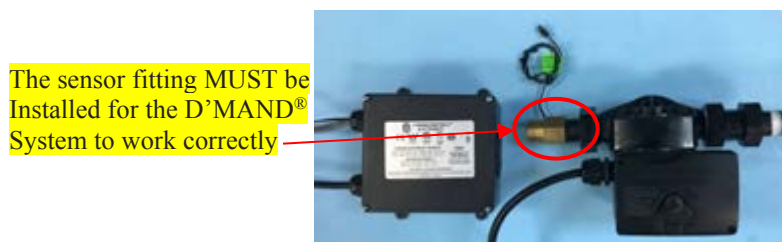
Pre-assemble the pump, adapters, and valves. (Model C3-100):

Note: Teflon tape or dope should be used when joining the pump's proprietary resin body to the adapters. Using Teflon makes hand tightening easier prior to the final $\frac{1}{4}$ to $\frac{1}{2}$ turn joining the components. Make sure the included washer for each adapter is being used when joining the components.

1. Lay the D'MAND KONTROLS® pump in front of you on its back with the 3-speed selector facing up and readable.
2. Place Teflon tape on the 1" fitting on the left of the pump.
3. Thread on the 1" x $\frac{3}{4}$ " adapter with the pre-assembled brass temperature sensor fitting to the pump.
4. Verify the 1" x 1" adapter with IFC valve is installed on the right side of the pump.
5. Place Teflon tape on the thread of the 1" x 1" adapter.
6. Install the second 1" x $\frac{3}{4}$ " adapter on the right side.

Note: On the left side, the brass temperature sensor fitting will need to be installed for the D'MAND® System to be used correctly.

The assembled pump should look like this (top view):



C3-100 Shown

7. Apply Teflon tape to the $\frac{3}{4}$ " threads of 1" x $\frac{3}{4}$ " adapter and the brass temperature sensor fitting.
8. See note at bottom of page 3. (If you ordered the PF-Kit-S Model ONLY)

Pre-assemble the pump and flange. (Models S3-100, SS3-200):

Note: Each side of the ACT D'MAND Kontrols® pump should have two (2) 1/16" bolts with two (2) 1/16" nuts, one (1) DMAND KONTROLS® stainless-steel flange, and one (1) rubber seal.

Attention Builders: Installed pumps connected to water will need to be activated and run through a cycle at least once every 30 days, or the pump impeller may seize in position. Contact ACT Inc. at (800) 200-1956 with questions on how to troubleshoot a pump if you suspect this has occurred.

1. Lay the D'MAND KONTROLS® pump in front of you on its back with the 3-speed selector facing up and readable.
2. Unwrap the Flange Kit (included) with your System.
3. Place the rubber seal in the round groove on your DMAND KONTROLS® pump.
4. Put one 1/16" bolt on top of the flange with the threads facing in.
5. Place the stainless-steel flange on the bolt and lightly secure with nut. **DO NOT** tighten.
6. Place second bolt with threads facing in on the bottom of the flange through the stainless-steel flange and **LIGHTLY** secure with the 1/16" nut. Once the stainless-steel flange is secure, **TIGHTEN EVENLY** from both sides.



Typical flange installation S3-100 (top view)



Typical flange installation SS3-200 (top view)

7. Repeat procedure on the other side of pump.
8. Make sure flanges are parallel to pump when tight.

Note: If pump is to be placed under sink, it is recommended the flex lines now be connected for ease of installation.

1. Thread the supplied 3/4" flex line to each side of D'MAND KONTROLS® pump, onto each 3/4" adapter or flange.
2. Bend the flex lines so they are pointed upward with the pump on its back.

UNDER SINK INSTALLATION

Install the D'MAND KONTROLS® System with the Pre-Fab KIT (PF-Kit-S)

The ACT D'MAND KONTROLS® System that is equipped with the pre-fab installation package (PF-Kit-S), is designed to simplify the installation of the System to ½" copper hot and cold supply lines underneath a sink.

The PF-Kit-S includes:

- Two (2) custom stainless-steel ½" compression x ¾" MIP x ½" compression T's
- Two (2) flex lines 18" x ¾" FIP
- One (1) MB-CS-SS-SM (C3-100 and S3-100 Models)
- One (1) MB-BR-LRG (SS3-200 Models Only)

Note: Additional pipe thread fittings may be required if your supply lines are threaded galvanized or CPVC plastic pipe. Call 1-800-200-1956 for assistance.

To Install the Custom T Fittings (PF-Kit-S only)



Custom stainless-steel ½" compression x ¾" MIP x ½" compression Pre-Fab T's



Compression fitting inlet



Compression nut

Note: **NEVER** apply either Teflon tape OR Pipe Dope on **compression threads** or fittings. This will void the custom T fitting warranty of ACT, Inc.

1. Turn off the house water supply.
2. Open the hot and cold faucets at the fixture chosen for installation. This will relieve the water pressure from the hot and cold-water pipes. It is also advised to open hot and cold faucets on either a tub or shower to help vent the plumbing system.
3. Remove the shut-off valves that supply the hot and cold-water lines to the sink from the ½" copper pipe. For ease of installation you may leave the compression ring and nut from the angle stop on the hot and cold-water supply lines.

Note: If the existing ring or nut is damaged you may use the parts from the new custom T's.



4. Remove the compression ring and nut from the compression fitting inlet on the supplied Pre-Fab custom T's.



5. Insert the compression fitting inlet of the new Pre-Fab Custom T's into the nut on the hot and cold-water supply pipes. Tighten until there are NO leaks.



6. Insert compression fitting inlet of angle stops (valves) into the compression nut of the new Pre-Fab Custom T's. Both connections are compression "fine" threads. Tighten until there are NO leaks.



No Teflon Tape on 3/4" MIP

7. Apply Teflon tape to the 3/4" MIP on both the Stainless-steel T's



Teflon Tape added to 3/4" MIP

Pump Position:



Place the pump in the cabinet

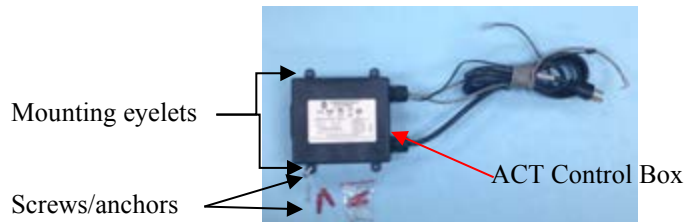
- 1) Install the ACT D'MAND KONTROLS® pump in the **Horizontal** position with the 3-speed selector facing up toward the sink, underneath the hot and cold T's.
- 2) Be sure the arrow either on top of the pump (C3-100 models) or on the metal portion of the pump visible with the 3-speed selector facing up (S3-100 and SS3-200 models) points left to right (hot water to cold water side) prior to connecting the flex-lines or adapters.
- 3) Thread the 3/4" flex line to the 3/4" male thread on the custom T.
- 4) Tighten all fittings to ensure there are no leaks.

Note: Placement of the pump in a vertical position will decrease the life of the D'MAND KONTROLS® pump and result in an increased noise level. Use of any parts other than the supplied D'MAND KONTROLS® parts, including check valves or flex-lines may restrict and delay the flow of water from the water heater, and possibly void the warranty.

Connecting the ACT D'MAND KONTROLS® Control Box:

- 1) Ensure the D'MAND KONTROLS® control box is installed using the screws and anchors, (included), to an adjacent surface close to the pump.
- 2) See page 11 for mounting instructions for D'MAND KONTROLS® controller.
- 3) Connect D'MAND KONTROLS® pump power cord to receptacle in D'MAND KONTROLS® controller.

Note: System should always be installed on an AC power line that includes circuit breakers.



Connecting the Temperature Sensor

Locate the sensor wire from the top of the pump, (see picture below), and the black plastic end connector. This will need to be connected to the connector from the D'MAND KONTROLS® controller box. This will allow your pump to sense water temperature differential in the water line.



IMPORTANT! Failure to connect the temperature sensor will cause the system to malfunction.

Install Activation Accessories

Button

- 1) Drill a $\frac{5}{8}$ " hole in the face of the cabinet where the D'MAND KONTROLS® pump is installed.
- 2) Feed the two (2) wire cable through the $\frac{5}{8}$ " hole.
- 3) Connect the hard-wired button to the two-wires (Red and Black), by using a screwdriver to attach one wire to each of the two (2) terminals on the sides of the button.



Standard Button

- 4) Once the wires are well connected, you can firmly press the round button into the hole until secure.



Note: Both LED buttons and LED rocker switches are available for purchase.



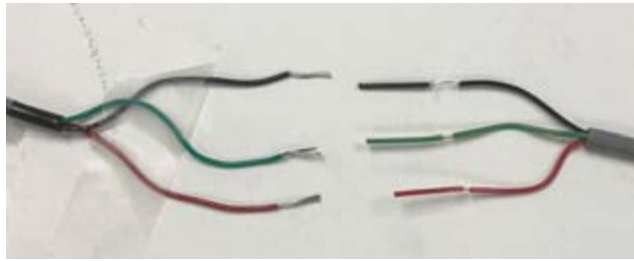
LED Button shown installed in BP-W (Optional)



LED rocker switch installed in wall plate

Three (3) wire activation accessory

- 1) Connect the three (3) wire cable with the color-coded wires from the D'MAND KONTROLS® pump to the three wires on the accessory. Example: red to red, green to green, and black to black.



- 2) Make sure to use the three (3) wire nuts provided to cap the connections.

Note: Any wire leads not in use, please cut, cap (two (2) wire cable only) or tape. Failure to do so can cause the pump to run erroneously. When covering the wire leads in tape make sure none of the leads are touching.



Cut



Cap



Tape



Tape

Once all the wires from the D'MAND KONTROLS® pump are connected, then you may plug the pump to the three prong 110v outlet.

Note: The pump will start and run one (1) cycle if there is no hot water at the pump.

Using the D'MAND KONTROLS® System:

The D'MAND KONTROLS® System will run only until hot water is present. Once hot water is at the pump, the System will shut down and remain dormant until **both** following conditions are met:

1. The water cools down.
2. The user activates the pump.

The D'MAND KONTROLS® System will **NOT** run if:

1. There is hot water at the pump.
2. The user does not activate the pump.

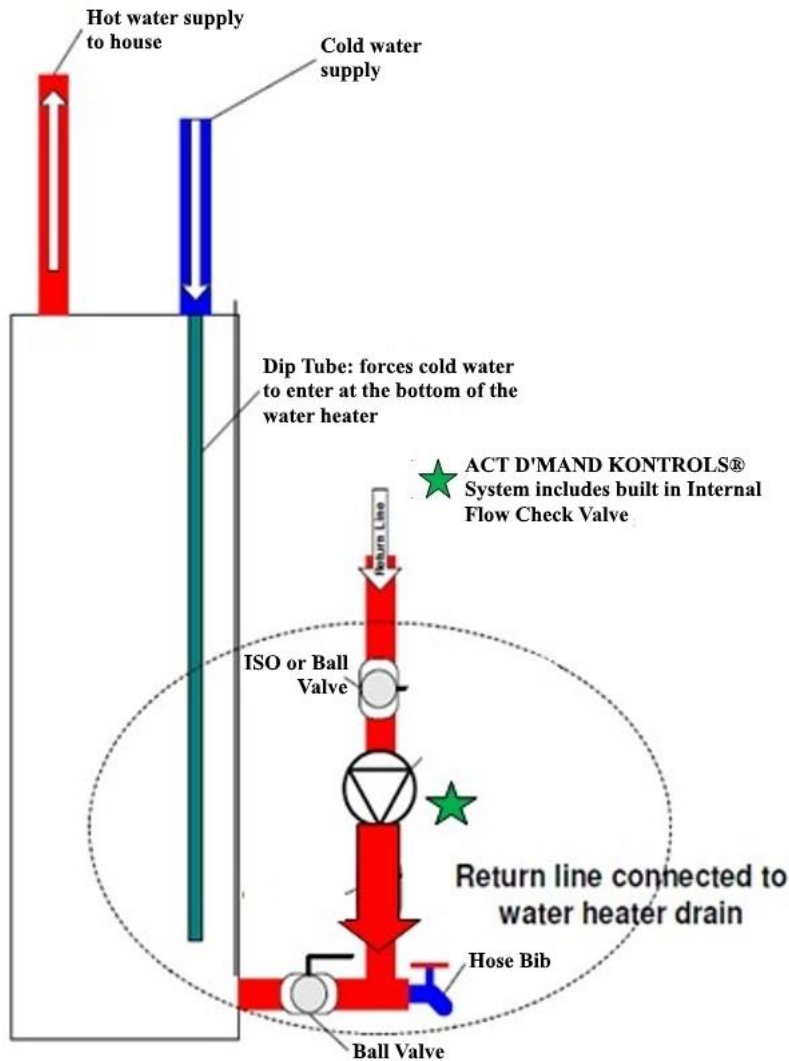
Note: In order to boost energy efficiency, ACT Inc. D'MAND® pumps can change to a lower speed. It is recommended that the pump is on the "HI" setting to minimize the wait time in a residential application.

DEDICATED RETURN LINE INSTALLATION

Installing the ACT D'MAND KONTROLS® System

The D'MAND KONTROLS® System can be installed at any location on the dedicated return line.

Pump Position:

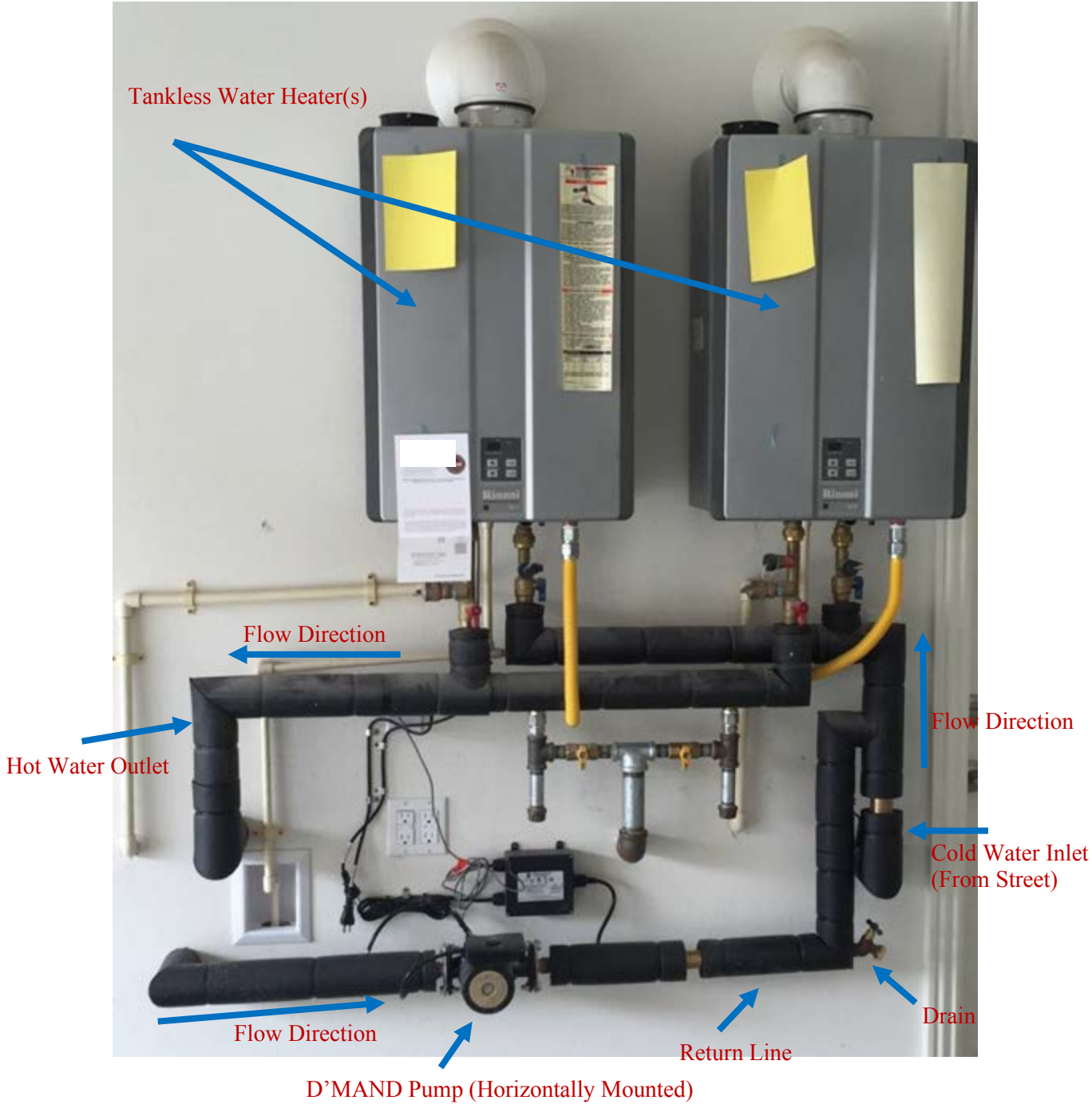


- 1) Ensure that the pump is not installed directly above the water heater or within 18". This may cause the unit to detect the heated water in the tank and not function as desired.
- 2) Orientate the unit with the flow direction arrow pointed towards the water heater.
- 3) Place the motor/cylinder in a horizontal position to ensure the unit is quiet and has the maximum life.

Recommendation: Purge any air by installing isolation valves in front and behind the pump. A drain valve will also make any maintenance quick and simple. (See diagram to the left).

Note: ACT D'MAND KONTROLS® System has $\frac{3}{4}$ " MIP thread fittings on either side of the pump which will need to be adapted to the existing plumbing line. Pipe sealant or Teflon tape is recommended to ensure there are no leaks. Once the unit is plumbed into the return line, proceed to connecting the activation accessories.

Recommended installation on return line

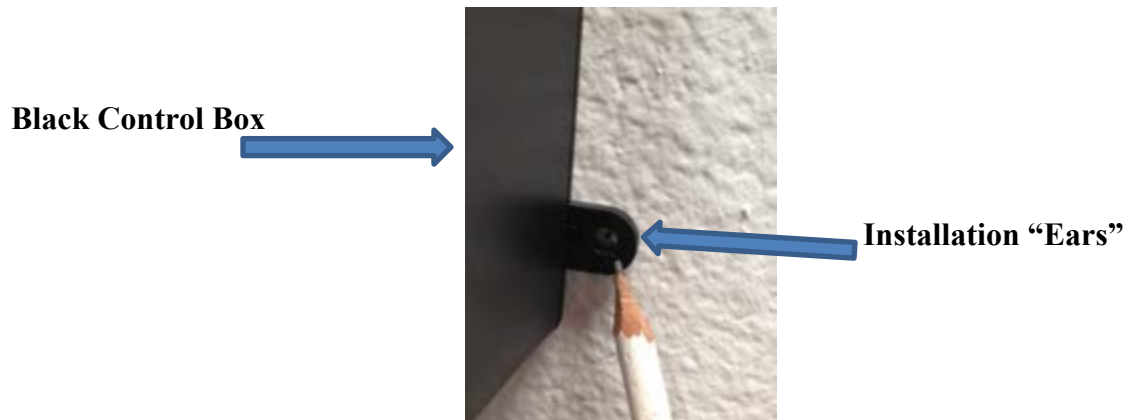


Using the D'MAND KONTROLS® System:

For information, see same heading on bottom of page 8.

C3, S3 and SS3 Control Box Wall Installation Instructions

1

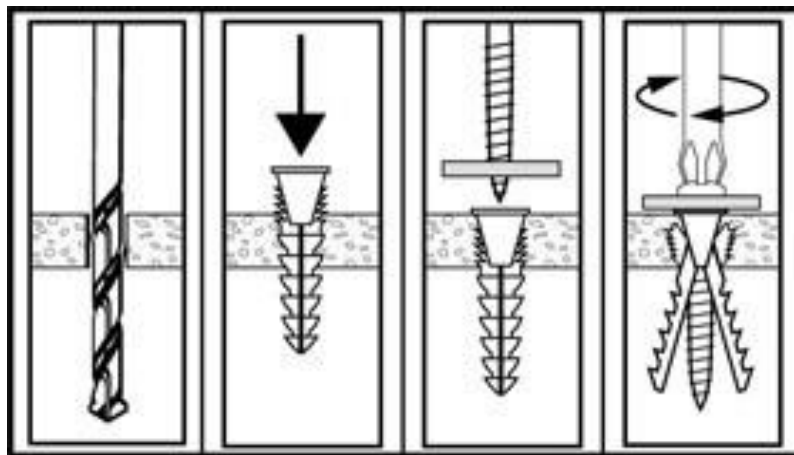


2

3

4

5



Installation Steps:

- 1) Place the ACT, Inc. D'MAND Controls® System black control box against the wall and mark all four (4) holes with a pencil.
- 2) Drill out all four (4) holes in drywall with $\frac{3}{16}$ " drill bit.
- 3) Insert the four (4) plastic drywall anchors into each of the holes.
- 4) Place black control box over the anchors aligning the "ears" with the installed anchors.
- 5) Place screws (supplied) in each of the anchors, firmly affixing the box to the wall. **Do not over tighten!**

*Note: If the wall is not drywall then the anchors may not be necessary.

TROUBLESHOOTING

Diagnosing Specific Problems

<u>Problem</u>	<u>Possible Cause</u>	<u>Remedy</u>
1. The pump does not run when push button is pressed	<ul style="list-style-type: none"> A. No power at electrical outlet B. You've plugged the controller into an electrical outlet controlled by a wall switch, (such as the outlet under many kitchen sinks that controls the garbage disposal) C. Power cord is not securely installed into the pump controller D. Wire to push button is not connected properly E. The temperature setting is already sensing "hot" water, so the pump is not being activated 	<ul style="list-style-type: none"> • Plug the controller into a "hot" outlet • Reconnect pump power cord to female receptacle in D'MAND KONTROLS® controller • Shut off power, then make sure wires have good contact • Call 1-800-200-1956 to reset sensitivity setting
2. The water is not hot enough	<ul style="list-style-type: none"> A. Pump or valve was installed with water flow going in the wrong direction B. There is something in the piping that is blocking the flow of water 	<ul style="list-style-type: none"> • Check the arrow on the top of the pump to make sure it points in the correct direction (see page 6) • Check the piping for obstruction
3. There is hot water at the cold-water tap	<ul style="list-style-type: none"> A. The temperature sensitivity setting now in place is too <u>high</u>, so the pump is not shutting down soon enough 	<ul style="list-style-type: none"> • Call 1-800-200-1956 for reset information
4. Water is not hot enough when pump shuts down	<ul style="list-style-type: none"> A. The temperature sensitivity setting now in place is too <u>low</u>, so the pump is shutting down too soon 	<ul style="list-style-type: none"> • Call 1-800-200-1956 for reset information
5. There is hot water in the cold-water lines only	<ul style="list-style-type: none"> A. The pump is installed backwards 	<ul style="list-style-type: none"> • Reinstall the pump correctly
6. Pump runs approx. 4 minutes & stops with no hot water present	<ul style="list-style-type: none"> A. Air is trapped inside the pump 	<ul style="list-style-type: none"> • Remove both flex lines at the custom tees. Fill both flex lines with water and reconnect
7. Motion sensor not activating pump	<ul style="list-style-type: none"> A. Circuit board not set to 12V inside D'MAND KONTROLS® Pump (Prior to 2016) 	<ul style="list-style-type: none"> • Settings must be changed • Call 1-800-200-1956



WARRANTY

ACT, Inc. D'MAND KONTROLS®

ACT, Inc. will replace without charge (at the Company's option) any D'MAND Kontrols® pump, valve, or component part which is proven defective under normal use. Warranty – (Five Years from date of purchase) Accessories: Hard-Wired Buttons, Wireless Transmitters and Receivers, all Hard-Wired or Wireless Motion Sensors and Receivers; Parts; Flex Lines and Tee's: Warranty – (One Year from date of purchase.) Labor is not included with Limited Warranty.

In order to obtain services under this warranty, it is the responsibility of the purchaser to promptly notify the Company in writing and promptly deliver the item in question, delivery prepaid to the factory. The address for notification and delivery is ACT, Inc. D'MAND Kontrols® Systems, 3176 Pullman Street, Suite 119, Costa Mesa CA 92626. If the product or part in question contains no defects as covered in the warranty, the purchaser will be notified and billed for parts and labor charges in effect at the time of factory examination and repair.

Any product or part not installed or operated in conformity with instructions or which has been subject to misuse, misapplication, the addition of petroleum based fluids or certain chemical additives to the system, or other abuse, will not be covered by this warranty.

Important Notice! In rare cases outdoor lawn sprinklers, Pool fillers/pumps, or hose bibs may cause pressure differences that can allow cross flow in the D'MAND Kontrols® System. Our patented (HSV) safety valve will be necessary to prevent cross-flow from the water heater. Cross-Flow may void our warranty on the D'MAND Kontrols® System.

ACT, Inc. OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTY SET FORTH IN THE PARAGRAPH ENTITLED "LIMITED WARRANTY" AS SHOWN ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF ACT, INC. D'MAND KONTROLS® SYSTEMS.

ACT, INC. D'MAND KONTROLS® SYSTEMS WILL NOT BE LIABLE FOR ANY SPECIAL INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives you specific rights, and you may have other rights, which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so those limitations or exclusions may not apply to you.

Please refer to our website at www.gothotwater.com for warranty and indemnification information.

July 2021

ALL 3-SPEED MODEL PACKAGE CONTENTS

C3-100

Box Contents Includes:

- 1). A pre-assembled Controller/Circulator Pump Assembly
- 2). One (1) Control Box Black with power cord and activation wires
- 3). One (1) Adapter with IFC valve
- 4). Two (2) Adapters reducers to 3/4" MIP (Male Iron Pipe) thread
- 5). One (1) Brass temperature sensor fitting with wire/connector (*Pre-installed to one (1) of the above reducing adapters*)
- 6). One (1) Plastic bag containing one (1) Standard Push-Button and one (1) Screw Pack including Four (4) 1" Pan Head Phillips Screws and four (4) gray 3/16" x 7/8" Plastic Anchors

S3-100, SS3-200

Box Contents Includes:

- 1). A pre-assembled Controller/Circulator Pump Assembly
- 2). One (1) Control Box Black with power cord and activation wires
- 3). One (1) Flange Kit including two (2) Flanges, four (4) Nuts, four (4) Bolts, and two (2) Rubber Seals
- 4). One (1) Plastic bag containing one (1) Standard Push-Button and one (1) Screw Pack including Four (4) 1" Pan Head Phillips Screws and four (4) gray 3/16" x 7/8" Plastic Anchors

C3-100

Push Button and Screw Pack

Control Box

S3-100

SS3-200



18" Flex Lines



Small Mounting Bracket



Stainless Steel
Compression
T Fittings



Flange Kit



Large Mounting Bracket

C3-100-PFS

Box Contents Includes:

All the above in the C3-100 contents, **plus** all the following:

- (1) Small Mounting Bracket
- (2) Custom Stainless-steel Compression T fittings
- (2) Custom 18" x 3/4" FIP X FIP (Female Iron Pipe) flex lines

S3-100-PFS

Box Contents Includes:

All the above in the S3-100 contents, **plus** all the following:

- (1) Small Mounting Bracket
- (2) Custom Stainless-steel Compression T fittings
- (2) Custom 18" x 3/4" FIP X FIP (Female Iron Pipe) flex lines

SS3-200-PFS

Box Contents Includes:

All the above in the SS3-200 contents, **plus** all the following:

- (1) Large Mounting Bracket
- (2) Custom Stainless-steel Compression T fittings
- (2) Custom 18" x 3/4" FIP X FIP (Female Iron Pipe) flex lines