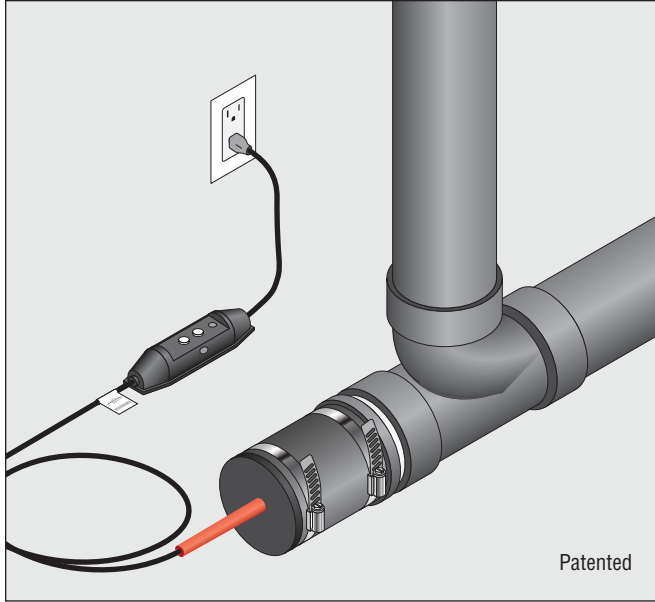




Retro-DWS[®]

Internal Heating Cable System for Non-Pressurized Sewer and Waste Drain Pipes

Installation Instructions



Kit Description

Retro-DWS is a tubular self-regulating heating system designed for use in 4-inch and 3-inch non-pressurized sewage and waste water drain lines, as well as other large diameter non-pressurized pipes and storm drains. Additional add on kits and fittings may be required for sizes other than 4-inch. Retro-DWS is also suitable for other large diameter non-pressurized pipes and storm drains. The core tube is constructed of HDPE (high density polyethylene) and will push inside most pipes for long distances. They can also be drawn in with a fish tape.

Retro-DWS utilizes a conductive polymer tubular heater technology which provides a barrier from the fluids while providing extremely efficient freeze protection. Retro-DWS can be used as a system to prevent freezing or as a precautionary system. If the drain waste or sewer freezes, the system can be energized to begin the thawing process.

Retro-DWS is supplied with all of the necessary fittings to fit a 4-inch pipe (3-inch kit optional add on) at a clean out or other entry point. The Retro-DWS can be easily adapted to fit larger pipe diameters if required by using readily available, industry standard components.

Available with Ground-Fault Protection (GFCI) or Cord-Set (CS) both in 120 volt and 240 volt.

For installation of Retro-DWS into other applications refer to Retro-DWS Other Methods document.

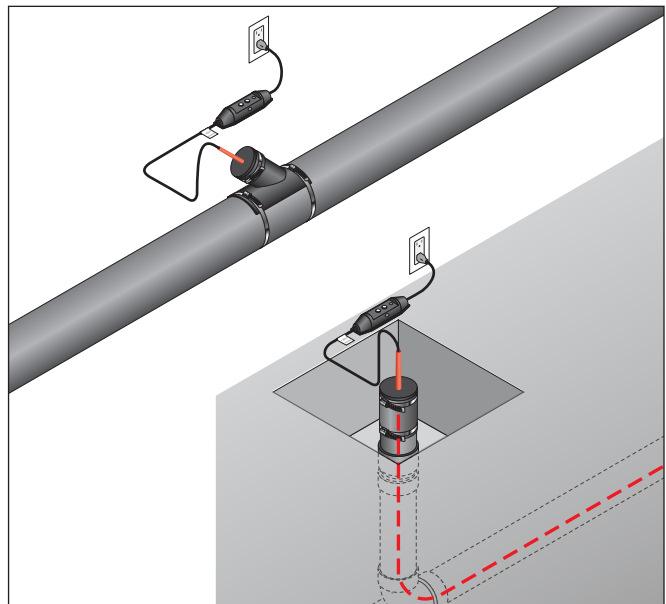
Approvals



Usage Type W
Installation Type D USA

Table of Contents

General Information	1
Warnings	1
Kit Contents	2
Ordering Chart	2
Optional Accessories	2
Standard 4-inch Cleanout Instructions	3
Standard 3-inch Cleanout Instructions	5
Control Devices and Insulation Installation	7
Electrical System Connection	9
Limited Warranty	10
Extended Warranty Application Form	11



WARNING:

Important Safety Instructions and Rules for safe Installation and Operation

FIRE AND SHOCK HAZARD. This component is an electrical device which must be installed properly. Read and follow these rules and instructions carefully. Failure to follow them could result in serious bodily injury and/or property damage.

WHEN PERFORMING WORK OR REPAIRS ON YOUR WATER SYSTEM BE SURE TO UNPLUG YOUR HEAT-LINE SYSTEM FROM THE POWER SUPPLY.

- Check your local building, plumbing and electrical codes before installing. You must comply with their rules.
- Do not force the Retro-DWS into the pipe to the point where the pipe creases and bends.

- Do not install the Retro-DWS interface connection in a manner which would render it non-serviceable.
- Retro-DWS meets cCSAus codes for use in Canada and the United States.
- Before installing this product have the electrical outlet checked by an electrician to make sure it is properly installed and grounded in accordance with your local Electrical Code.
- Before installing or servicing your Retro-DWS **BE CERTAIN** that the power source is disconnected.
- Do not use extension cords.

- **This product is designed to keep drains from freezing in serious climate conditions.** The Retro-DWS tube may obstruct certain materials, especially solids in the drains so a service schedule for proper maintenance is recommended. **The use of this product is at the sole discretion of the user. Heat-Line will not be liable for obstructions or blockages that may occur in some situations.**
- Never tamper with or alter the electrical apparatus associated with your Heat-Line system.
- The Retro-DWS product is **exclusively designed** to be employed in **non-pressurized** plumbing drain, waste, and sewer pipe applications. It is not designed to be installed or operated in a pressurized application.

Tools Required

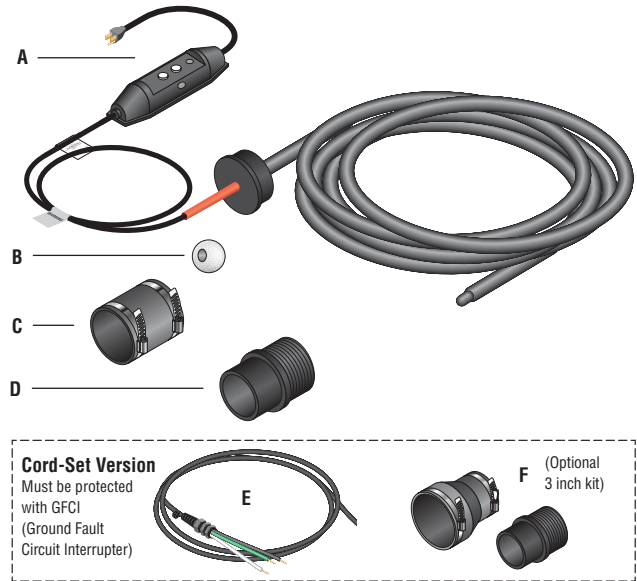
- 5/16" nut driver or standard screwdriver
- Pipe cutting tool for 4" and/or 3" ABS
- Torque wrench
- Large adjustable wrench or tongue and groove pliers

Additional Materials Required

- Teflon tape or thread sealant

Kit Contents

Item	Qty	Description
A	1	Retro-DWS – predetermined length (GFC shown)
B	1	Pre-drilled dissolving ballpoint
C	1	4" flexible pipe coupler
D	1	4" ABS threaded male adapter SPIG X MIPT
E	1	Optional Cord-Set (CS) power connection
F	1	Optional 3 inch pipe adapter kit (DWS-3.00-KIT)



Ordering Chart

Example: **DWS - 5 - 100 - GFC**

Product	DWS 120 V Retro-DWS DWS2 240 V Retro-DWS	Cord-Set Type	GFC Ground fault protected 5-15 P 120 V / 6-15 P 240 V CS Cord connected (no GFCI)
Nominal Power Output	5 5 W/ft @ 50°F (16 W/m @ 10°C) 8 8 W/ft @ 50°F (26 W/m @ 10°C)	Length of System	
		GFC Ground Fault Protected	CS Cord Connected (no GFCI)
		<i>Max length</i>	<i>Max length</i>
		5 W/ft 120 V 230 ft	230 ft
		8 W/ft 120 V 150 ft	150 ft
		5 W/ft 240 V 460 ft	540 ft
		8 W/ft 240 V 300 ft	400 ft

NOTE: Installers must provide 20 Amp circuits for CS circuit lengths greater than 460 ft for 5 W/ft and 300 ft for 8 W/ft systems.

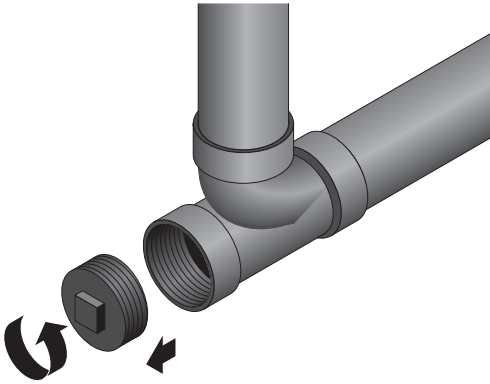
Optional Accessories

DWS-3.00-KIT	3 inch pipe adapter kit, includes coupler and threaded male adapter	TIMER-CS	120/240V hard wire timer (for CS models)
HLJ-STAT	General purpose 120V, plug-in thermostat (for GFC models)	INSUL-FOIL	Aluminum reflective metalized foil bubble insulation
HLA-120	General purpose 120V, plug-in thermostat (for GFC models)	FOIL-TAPE	Professional Grade All Weather Foil Tape 2.83 inches x 150 feet (72mm x 46m)
GFA-STAT	NEMA 4X Ground Fault Protected Adjustable Thermostat 120V/240V 30amp (for CS models)	INSUL-3.00	Polyethylene insulation sleeve for 3 inch ID pipe (6 feet long, 3 1/2 inch ID, 3/4 inch thick wall)
MA-10	GFCI/ELCI Electrical Equipment Protection Device (for CS models)	INSUL-4.00	Polyethylene insulation sleeve for 4 inch ID pipe (6 feet long, 4 1/2 inch ID, 1 inch thick wall)
TIMER-120P	120V plug-in timer (for GFC models)	HLP-TAPE	Black wrap tape for sealing insulation ends together 2 inches x 100 feet (50.8mm x 3m)
TIMER-240P	240V plug-in timer (for GFC models)	TORQ-60	No hub torque wrench automatic release at 60 IN. LB.
		WARRANTY	Extended 10 year limited product warranty

Standard 4-Inch Cleanout

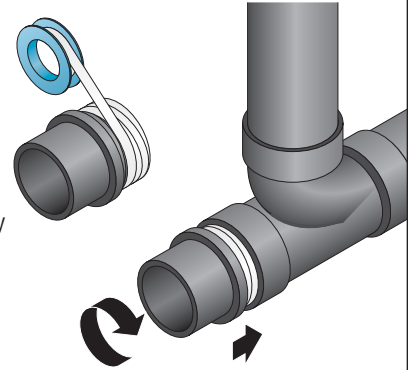
1

- Remove threaded cleanout plug.
- CAUTION:** Effluent may be present when threaded cap is removed.



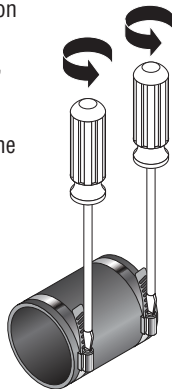
2

- Apply Teflon tape or thread sealant to the 4" ABS threaded male adapter SPIG X MIPT.
- Make sure to apply the Teflon tape in the direction of the threads to ensure it remains tight during threading of the fittings.
- Thread the male adapter into the clean-out female entry point.



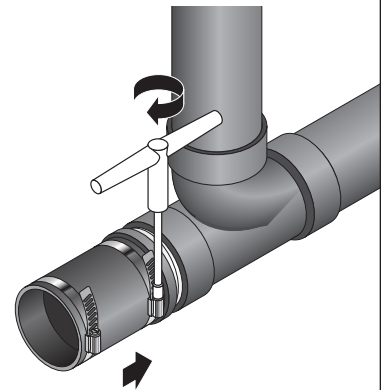
3

- Loosen the clamps on either end of the 4" flexible pipe coupler, do not remove the clamps from their seated location on the flexible pipe coupler body.



4

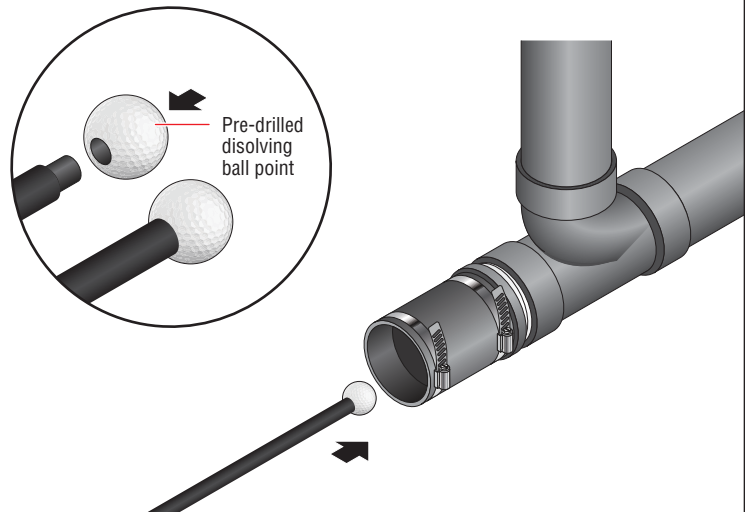
- Slide the flexible pipe coupler onto the now exposed spigot end of the male threaded adapter fitting and tighten the clamp to 60 inch-lb.



5

- Push the pre-drilled dissolving ballpoint onto the end-seal of the tubular heater making sure it is firmly in place. Then begin to feed the tubular heating cable system into the pipe through the installed flexible coupler.

Note: The pre-drilled dissolving ballpoint is designed to reduce the friction of the Retro-DWS tubular heater end-seal during installation. It also aids the passing of the tubular heater product through and around fittings located along the length the pipe.



6

- Insert the Retro-DWS pipe core into drain until the bushing interfaces into the coupling.

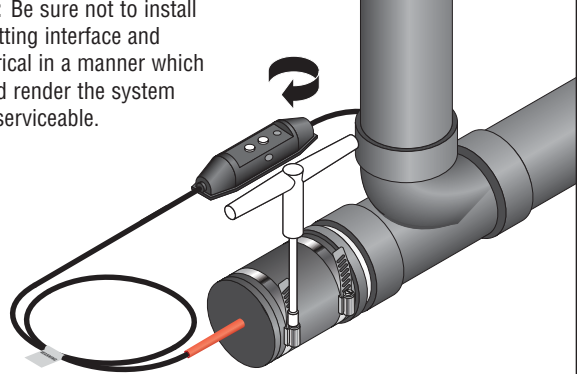
Tip: Install using short, close strokes being careful not to use force which will cause the tube to crease or bend.



7

- Tighten clamp around Retro-DWS to 60 inch-lb.
- In accordance with standard industry practices test the integrity of the seal.

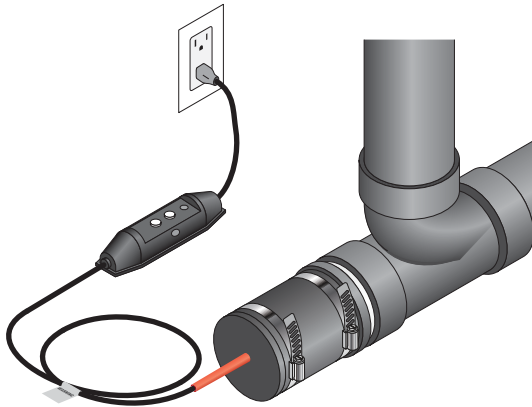
Note: Be sure not to install the fitting interface and electrical in a manner which would render the system non-serviceable.



8

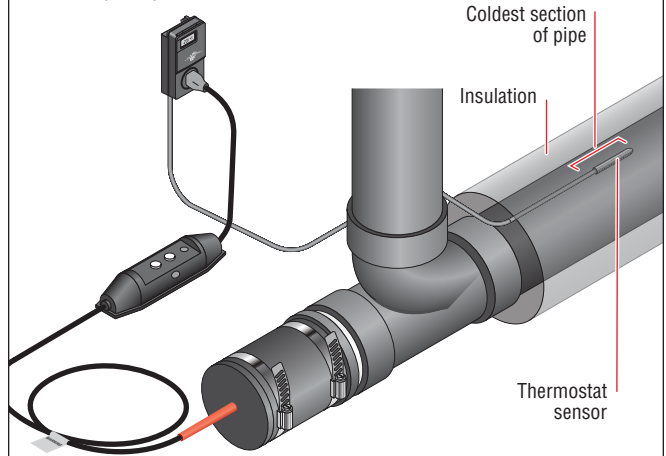
After all plumbing fittings have been completely installed.

It is time to energize your Retro-DWS system. Carefully follow the Electrical System Connection Instructions on page 8 and 9.



9

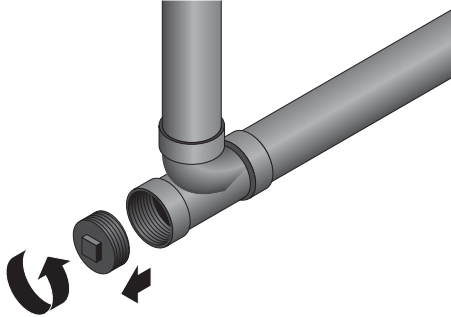
Refer to Control Devices and Insulation Installation on page 7 to complete your installation.



Standard 3-Inch Cleanout (For Use with 3-Inch Kit Optional Add On)

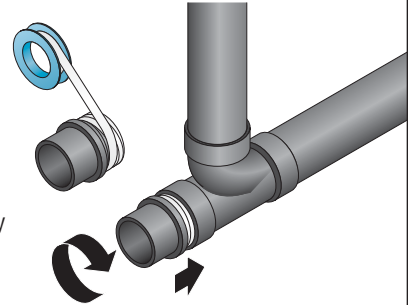
1

- Remove threaded cleanout plug.
- CAUTION:** Effluent may be present when threaded cap is removed.



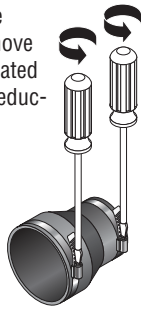
2

- Apply Teflon tape or thread sealant to the 3" ABS threaded male adapter SPIG X MIPT.
- Make sure to apply the Teflon tape in the direction of the threads to ensure it remains tight during threading of the fittings.
- Thread the male adapter into the clean-out female entry point.



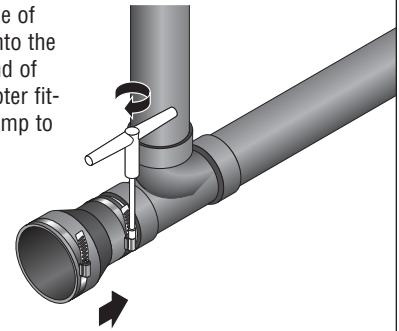
3

- Loosen the clamps on either end of the 4" x 3" flexible pipe reducer, do not remove the clamps from their seated location on the flexible reducer body.



4

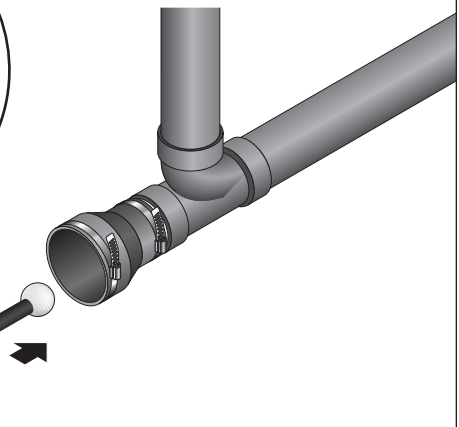
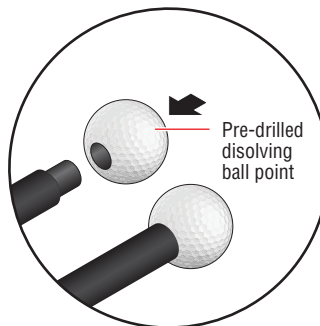
- Slide the 3" adapter side of flexible pipe reducer onto the now exposed spigot end of the male threaded adapter fitting and tighten the clamp to 60 inch-lb.



5

- Push the pre-drilled dissolving ballpoint onto the end-seal of the tubular heater making sure it is firmly in place. Then begin to feed the tubular heating cable system into the pipe through the installed flexible coupler.

Note: The pre-drilled dissolving ballpoint is designed to reduce the friction of the Retro-DWS tubular heater end-seal during installation. It also aids the passing of the tubular heater product through and around fittings located along length of the pipe.



6

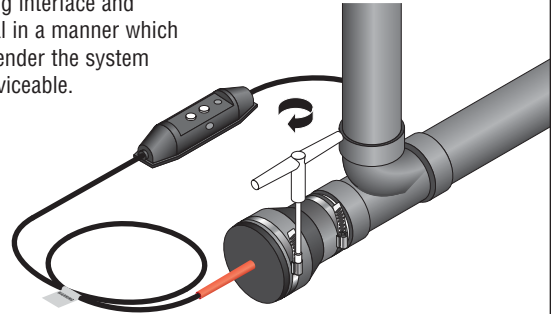
- Insert the Retro-DWS pipe core into drain until the bushing interfaces into the coupling.



7

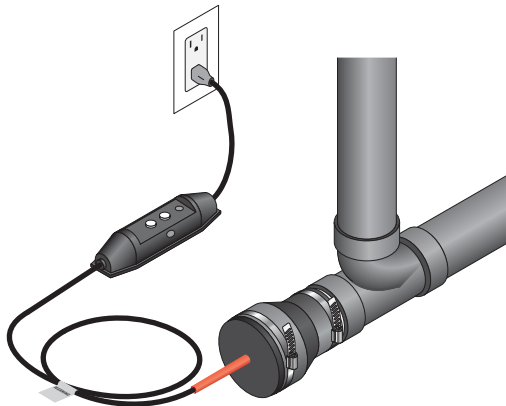
- Tighten clamp around Retro-DWS to 60 inch-lb.
- In accordance with standard industry practices test the integrity of the seal.

Note: Be sure not to install the fitting interface and electrical in a manner which would render the system non-serviceable.



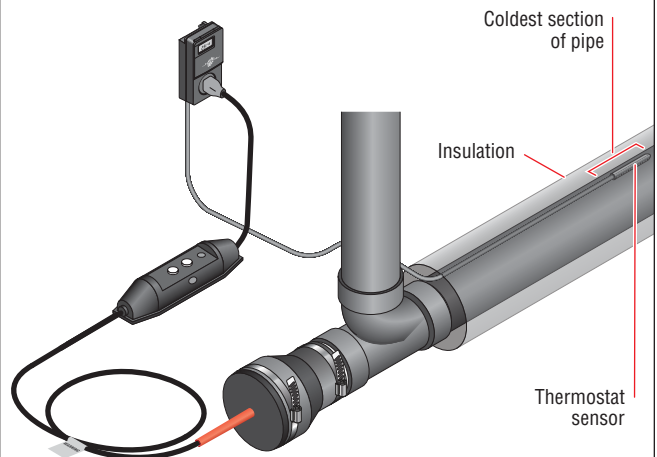
8

After all plumbing fittings have been completely installed. **It is time to energize your Retro-DWS system. Carefully follow the Electrical System Connection Instructions on page 8 and 9.**



9

Refer to Control Devices and Insulation Installation on page 7 to complete your installation.



Control Devices and Insulation Installation

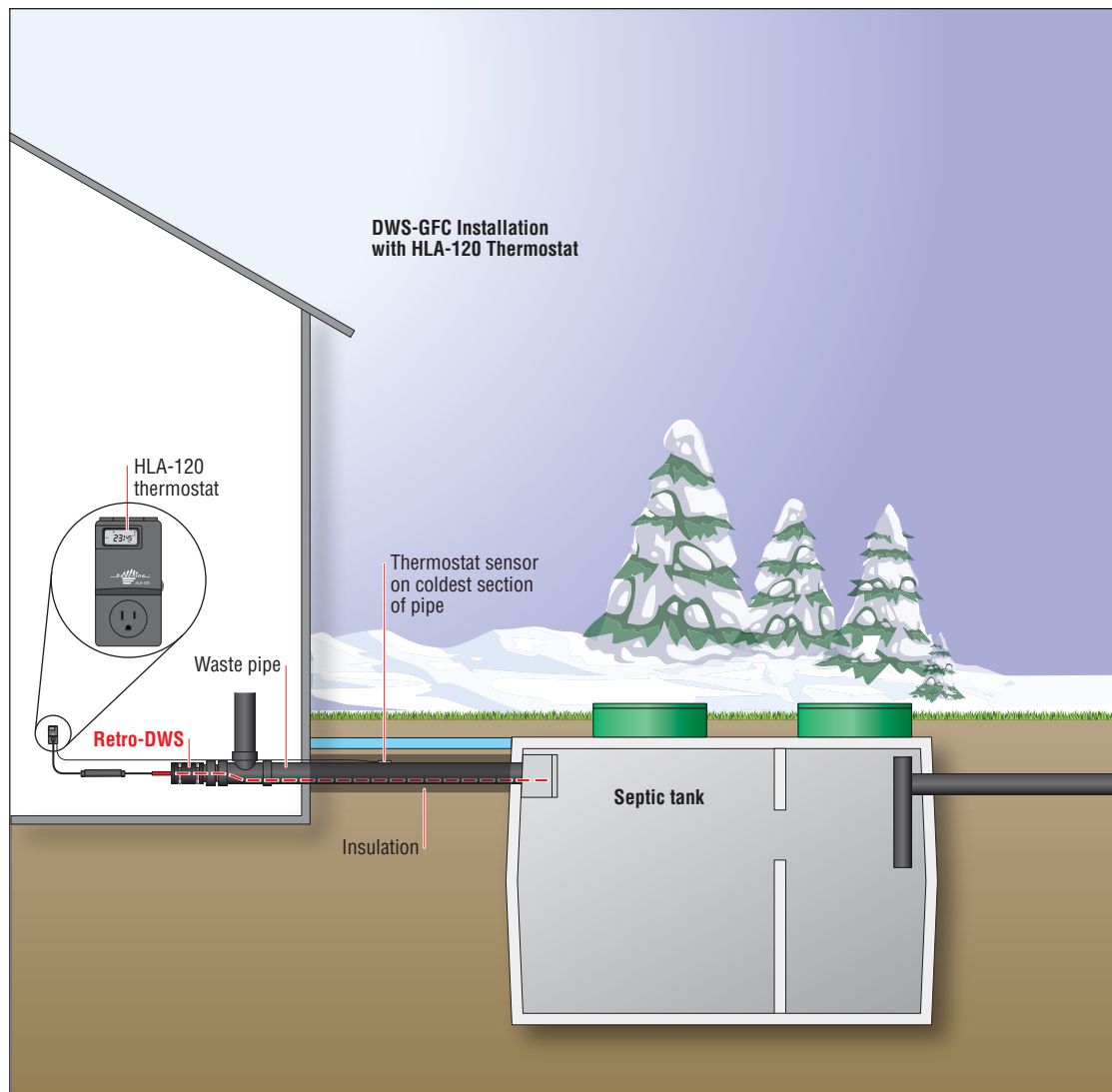
Control devices are not required to operate the heating cable system. They can be added for energy efficiency.

Thermostats are used to duty cycle the system in an on/off operation saving power consumption and maintain a certain pipe temperature. A sensor lead must be placed on the coldest section of pipe.

Timers are used to duty cycle the system in an on/off operation based on preset time intervals to save on power consumption.

Insulation is recommended for all new pipe installations, even where the pipe is to be buried.

For existing pipe applications, insulation is only required where the pipe is exposed to ambient outdoor temperatures, and/or where the pipe is above the ground. Insulation aids in heat retention making the heating cable more energy efficient and providing cold weather reliability.



Electrical System Connection

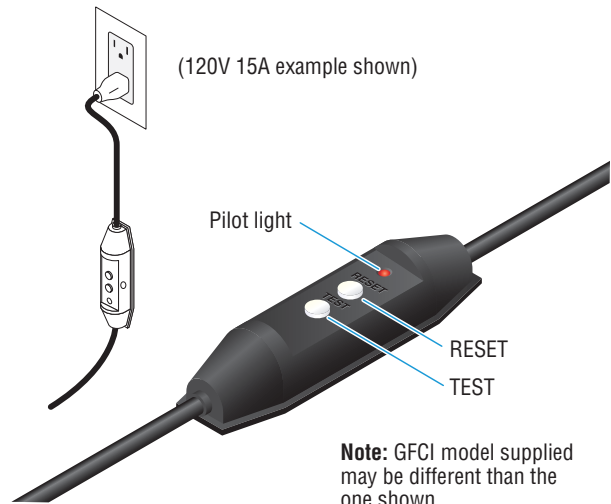
Electrical Connection for GFC (Ground Fault Plug-in) Models

- A. Unpack the Retro-DWS system plug from its protective package.
- B. Plug into your dedicated outlet. 120V 5-15R outlet for 120V systems or 240V 6-15R outlet for 240V systems.
- C. Push reset button on the cord set ground fault device until light comes ON. If light does not illuminate check power to outlet. Do not remove or tamper with the cord set. If used with a thermostat it may be necessary to bypass the thermostat control and plug directly into receptacle to perform test.
- D. Push test button and light will go OFF. This indicates that the electrical circuit is intact and fully protected.
- E. Push reset button again and light will come ON. This indicates that your Retro-DWS is working.
- F. Follow this test procedure before each season and monthly while in use.

Your Retro-DWS is now fully functional.

If at any time your Retro-DWS system fails to work call your local electrician or Heat-Line for assistance at 1-800-584-4944.

Unplug when not in use.



Electrical Connection for CS (Cord-Set) Models into Junction Box

Note: The “CS” version is designed to be installed by a qualified electrician and must be inspected by the governing electrical authority following completion of installation.

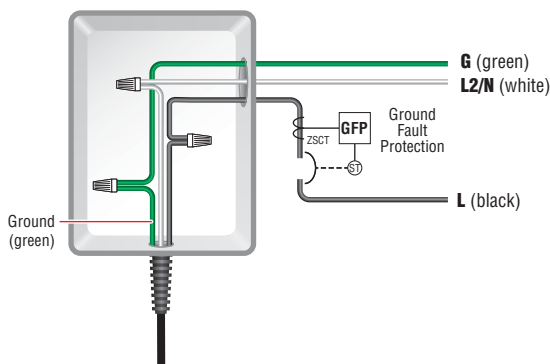
- A. Ensure the Retro-DWS system will be operated on a dedicated ground fault protected circuit with over-current protection appropriate for the circuit conductor size and heating cable length.
- B. Confirm power is disconnected at the power supply prior to proceeding.
- C. Remove approved junction box cover.
- D. Route the Retro-DWS cord-set wires into box with the supplied strain relief fitting.
- E. Connect appropriate wires together using approved wire nuts. Match wires white to white, black to black, and green to green. In the case of a metal junction box/enclosure, match green to ground screw and confirm screw is tight and secured afterward.

- F. Double check that the wires have been connected correctly and tight.
- G. Install junction box cover.
- H. Establish power to the circuit and test/reset the ground fault device for proper operation.
- I. Test the GFCI at the breaker before each season and monthly while in use.

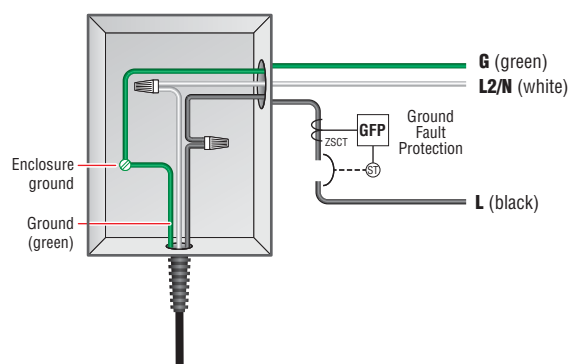
Your Retro-DWS system is now fully functional.

If at any time your Retro-DWS system fails to work call your local electrician or Heat-Line for assistance at 1-800-584-4944.

Non-Metal Junction Box



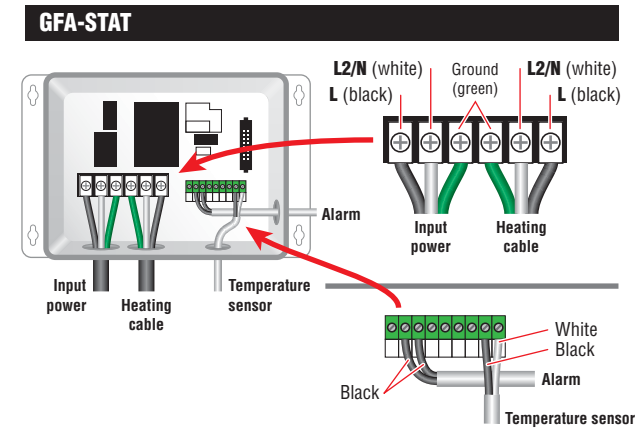
Metal Junction Box



Electrical Connection for CS models installed with the optional GFA-STAT (FPT-130)

- A. Ensure the Retro-DWS system will be operated on a dedicated circuit with over-current protection appropriate for the circuit conductor size and heating cable length.
 - Note:** GFA-STAT (FPT-130) includes ground fault protection.
 - B. Confirm power is disconnected at the power supply prior to proceeding.
 - C. Remove front cover of the GFA-STAT.
 - D. Remove black strain relief from the Retro-DWS power cord.
 - E. Route the Retro-DWS cord-set wires through strain relief fitting supplied with the GFA-STAT.
 - F. Follow electrical guidelines per the GFA-STAT (FPT-130) manual included with your GFA-STAT unit.**
 - G. Double check that the wires have been connected correctly.
 - H. Establish power to the circuit and test/reset the ground fault device for proper operation.
 - I. Test the GFA-STAT GFCI before each season and monthly while in use.
- Your Retro-DWS system is now fully functional.**

If at any time your Retro-DWS system fails to work call your local electrician or Heat-Line for assistance at 1-800-584-4944.



Limited Warranty

During the time periods and subject to the conditions hereinafter set forth. Heat-Line will repair or replace to the original user any portion of your Retro-DWS product which proves defective in materials or workmanship of Heat-Line. Contact Heat-Line or your installer for warranty service.

At all times Heat-Line shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. **Damage due to natural events or conditions beyond the control of Heat-Line are NOT COVERED BY THIS WARRANTY.**

STANDARD WARRANTY PERIOD: 60 months from date of purchase or 63 months from date of manufacture, whichever ever occurs first.

EXTENDED WARRANTY PERIOD: 120 months from date of purchase or 123 months from date of manufacture, whichever ever occurs first.

ACCESSORIES, COMPONENTS, ELECTRONICS: Not manufactured by Heat-Line, are warranted only to the extent of original manufacturer's warranty.

LABOUR, COSTS, ETC.: Heat-Line shall in **NO EVENT** be responsible or liable for the cost of field labour or other charges incurred by any customer in removing and/or reaffixing any Heat-Line product, part or component thereof.

THIS WARRANTY WILL NOT APPLY:

- (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided,

- (b) to failures resulting from abuse, accident or negligence;
- (c) to normal maintenance services and
- (d) to parts not used in accordance with applicable local codes, ordinance and good trade practices;
- (e) if the unit is moved from its original installation location or
- (f) if the unit is used for purposes other than for what it was designed and manufactured,
- (g) to the integral ground fault device and related electronics.

PRODUCT IMPROVEMENTS: Heat-Line reserves the right to change or improve its products or any component thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS: As to any Heat-Line product after the expiration of the time period of the warranty applicable thereto as set forth above. There will be no warranties including any implied warranties of merchantability or fitness for any particular purpose. No warranties or representations at any time made by any representative of Heat-Line, shall vary or expand the provisions hereof.

LIABILITY LIMITATION: In no event shall Heat-Line be liable or responsible for consequential, incidental or special damages resulting from or related in any manner to any Heat-Line product or parts thereof. In the absence of suitable proof of the purchase date, the effective date of this warranty will be based upon the date of manufacture plus 90 days.

Heat-Line Freeze Protection Systems

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Algonquin Highlands, ON Canada
KOM 1S0
Tel: 1-705-754-4545
1-800-584-4944
Fax: 1-705-754-4567
info@heatline.com
www.heatline.com

Heat-Line and Retro-DWS are registered trademarks of Heat-Line Corporation.

Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their particular application. Heat-Line a Division of Christopher MacLean Ltd. makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Heat-Line's only obligations are those in the Heat-Line Standard Terms and Conditions of Sale for this product, and in no case will Heat-Line be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, Heat-Line reserves the right to make changes—without notification to Buyer—to processing or materials that do not affect compliance with any applicable specification.



Retro-DWS Warranty Form

CONGRATULATIONS!

You have just purchased the most advanced internal freeze-protection system available on the market, backed by the finest warranty offered in the industry. Your Retro-DWS system comes with a standard 5 year limited warranty with an optional 10 year limited warranty available.

~ The warranty applies only to the original purchaser of the product and is not transferable at any time for any reason. The warranty form must be filled out and returned to Heat-Line within 6 months of invoice date or unit manufactured date plus 9 months to be eligible for the 10 year extended warranty. ~

OWNER MAILING ADDRESS

Name _____

Address _____

City _____

Prov/State _____ Postal/ZIP _____

Country Canada USA Other: _____

Home Phone _____

Email _____

INSTALLATION ADDRESS (if different than mailing)

Name _____

Address _____

City _____

Prov/State _____ Postal/ZIP _____

Country _____

Work/Cell _____

PRODUCT INFORMATION

Product Cat.# _____

Serial # _____

Length _____

Installation Type:

Sewage

Grey water

Drain

Other: _____

WARRANTY INFORMATION

5 Year Limited Warranty: **INCLUDED!**

10 Year Limited Warranty: \$1.75 / foot (\$75.00 minimum)

PAYMENT DETAILS FOR 10 YEAR LIMITED WARRANTY

System Length* _____	System Length* _____	= Subtotal _____
Units 1 to 540 feet = \$1.75 per foot OR \$75.00 minimum	x \$ 1.75/ft	
* For custom lengths involving inches, round up to the nearest foot		

Taxes and Currency

If Canadian Address:

Subtotal: _____

Provincial Tax %: _____ Tax Due: _____

Total in CDN Currency:

If U.S. Address or Other Country:

No Taxes Apply

Total in US Currency:

PAYMENT METHOD

Cheque

Enclose and make out to Heat-Line for full amount

Credit Card:

Mastercard or Visa

Name on Card: _____

Card Number: _____

Expiration Date: ____ ____

LIMITED WARRANTY

During the time periods and subject to the conditions hereinafter set forth. Heat-Line will repair or replace to the original user any portion of your Retro-DWS product which proves defective in materials or workmanship of Heat-Line. Contact Heat-Line or your installer for warranty service.

At all times Heat-Line shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. **Damage due to natural events or conditions beyond the control of Heat-Line are NOT COVERED BY THIS WARRANTY.**

STANDARD WARRANTY PERIOD: 60 months from date of purchase or 63 months from date of manufacture, which ever occurs first.

EXTENDED WARRANTY PERIOD: 120 months from date of purchase or 123 months from date of manufacture, which ever occurs first.

ACCESSORIES, COMPONENTS, ELECTRONICS: Not manufactured by Heat-Line, are warranted only to the extent of original manufacturer's warranty.

LABOUR, COSTS, ETC.: Heat-Line shall in **NO EVENT** be responsible or liable for the cost of field labour or other charges incurred by any customer in removing and/or reaffixing any Heat-Line product, part or component thereof.

THIS WARRANTY WILL NOT APPLY:

(a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided,

- (b) to failures resulting from abuse, accident or negligence;
- (c) to normal maintenance services and
- (d) to parts not used in accordance with applicable local codes, ordinance and good trade practices;
- (e) if the unit is moved from its original installation location or
- (f) if the unit is used for purposes other than for what it was designed and manufactured,
- (g) to the integral ground fault device and related electronics.

PRODUCT IMPROVEMENTS: Heat-Line reserves the right to change or improve its products or any component thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS: As to any Heat-Line product after the expiration of the time period of the warranty applicable thereto as set forth above. There will be no warranties including any implied warranties of merchantability or fitness for any particular purpose. No warranties or representations at any time made by any representative of Heat-Line, shall vary or expand the provisions hereof.

LIABILITY LIMITATION: In no event shall Heat-Line be liable or responsible for consequential, incidental or special damages resulting from or related in any manner to any Heat-Line product or parts thereof. In the absence of suitable proof of the purchase date, the effective date of this warranty will be based upon the date of manufacture plus 90 days.

PROOF OF PURCHASE

If a proof of purchase copy is submitted with this warranty application form, the warranty period will be effective as of invoice date. In the absence of suitable proof of purchase, the effective date of this warranty will be based upon the date of unit manufacture plus 3 months.

Proof of purchase (invoice) attached: Yes No

By signing below you acknowledge you have read and understand the full limited warranty document.

Signed: _____

Dated: _____

The warranty form must be filled out and returned to Heat-Line within 6 months of invoice date or unit manufactured date plus 9 months to be eligible for 10 year extended warranty.

Heat-Line and Retro-DWS are registered trademarks of Heat-Line Corporation.

Heat-Line Freeze Protection Systems

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ON Canada