GREEN SMART
SUSTAINABLE CONCEPTS, LLC

GreenSmart
Remote Controlled Greywater Diverter

Installation Guide/Owner's Manual

22RF-R, 22RF-L Wireless Remote Diverter

UPC ®

Made in the USA

Important: *This manual is to remain with the building throughout the life of the Diverter. Plumbing service workers doing any service to the building's wastewater or sewage system should be notified of the presence of the greywater diverters.*

GreenSmart Greywater Diverter Installation Guide/ Owner's Manual 22RF-R, 22RF-L Wireless Remote Diverter

This device is to be installed in accordance with all applicable building and plumbing codes including Chapter 16 of the Uniform Plumbing Code.

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Stub-out Option:
This unit can also be installed as a stub-out for future activation by the homeowner when ready for irrigational water re-use at a future time.

Components for Models 22RF-R, 22RF-L:
The Wireless Remote Diverter package includes the following components: *See Fig 1*

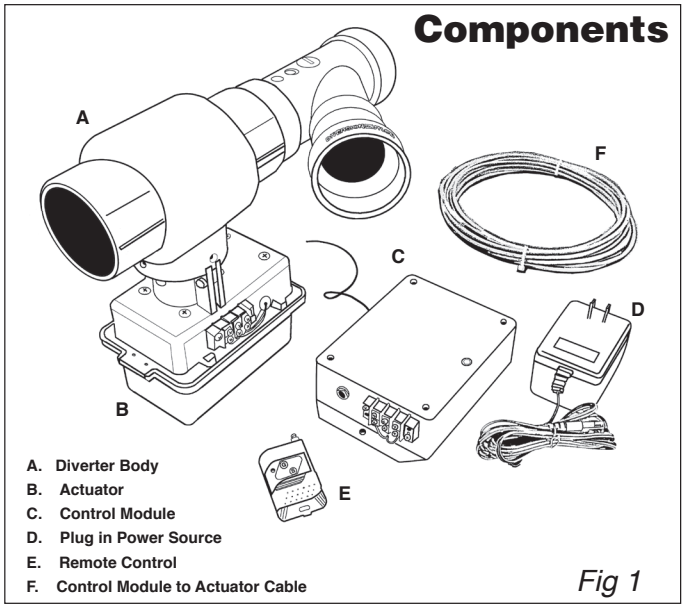

Fig 1

- **Plug-in Power Source (D)** UL Class 2, 110vAC to12vDC (1). Note: by using this Approved Plug-in Power Source, a GFI or circuit breaker is not required.
- **Control Module (C)** for the actuator Signal processor, fail-safe, and back-up battery, (9V Rechargeable battery included.)
- **Remote Control (E)** A 2-Button Transmitter
- **Diverter Body (A)** with Actuator, (20' 3-wire cable included)

Additional Materials Required:
- 3-wire cable #18-22 gauge, if needed
- One – 2½" 2" dia. ABS Nipple
- Two – 1 3/4" 2" dia. ABS Nipples
- Plumber's Strapping
- ABS Solvent Cement
- ABS to PVC Solvent Cement
- Three – 2" Fernco metal shielded rubber connectors for plastic pipe.
- "Plumb Quick by Fernco P3000-22, 2"Cl,
- PL or ST to2"Cl, PL, or ST."

Common Tools Needed:
Saw, tape measure, bubble level, 5/16" socket driver, hammer or dry wall power driver.

PRE INSTALLATION
Before installation, connect the Plugin Power Source to the Control Module and Actuated Diverter Body to insure everything is working before proceeding to the final installation process.

Wiring
See Fig 2 & 3
The "Plugin Power Source" has a male plug that plugs into the female jack on the Control Module. The Control Module will have a female jack to connect to the Plugin Power Source and a terminal strip to connect with the Diverter Body.

The Diverter Body and the Control Module will be wired together by way of the 3-screw terminal strips mounted on each component. Be sure to match the order in which you attach the wires to each terminal strip.

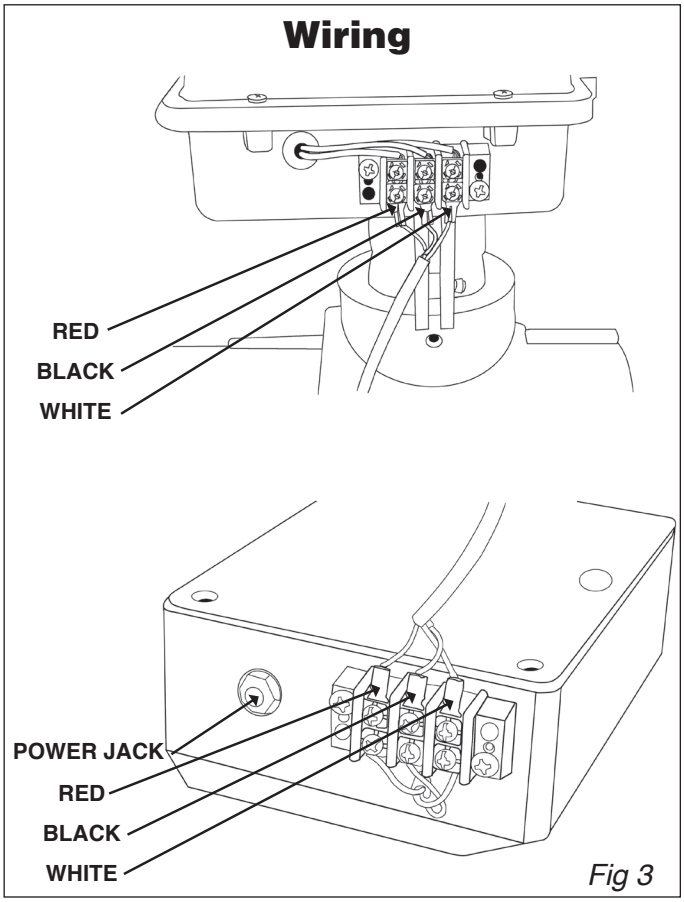

Fig 3

Control Module
See Fig 2
The Control Module contains an RF receiver to remotely activate the Diverter and a 9v.battery charger that constantly trickle charges the back up fail safe battery while connected to the Plugin Power Source.

Install the battery and connect the Plugin Power Source to the Control Module for several hours to bring the battery up to full charge before testing the failsafe mode.

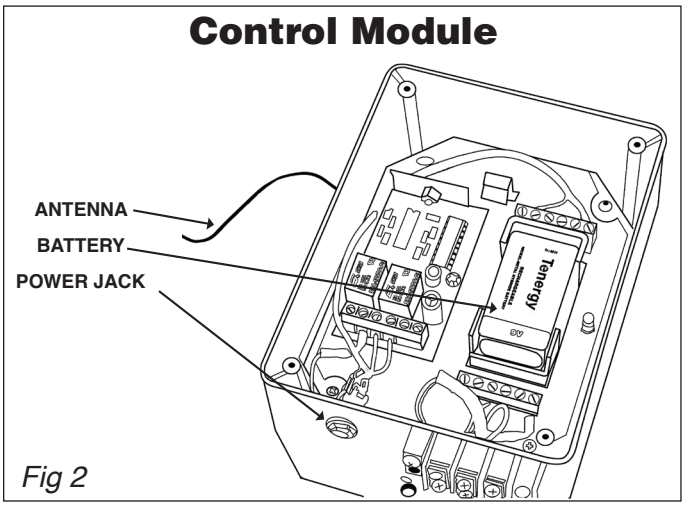

Fig 2

Pre Test
See Fig 4
After assembling the components you will be ready for the operation test. By pressing the 2 buttons on the remote control one at a time, the Diverter should open and close (each cycle will take approximately 4 – 5 seconds).

- Press the "**G**" (**G**reywater) button to divert the flow for reuse.
- Press the "**S**" (**S**ewer) button to divert the flow back to the main sewer line.

To test for the fail safe, start by setting the Diverter in the closed – reuse mode by pressing the (**G**) button on the Remote Control. Then simply disconnect the Power Source from the 110 AC socket or from the Control Module. The Diverter should automatically switch over to the open sewer waste mode.

*Note** Since the failsafe is powered by the backup 9v. battery, the cycling time to the open position will take a bit longer than the normal 12v. powered timing.*

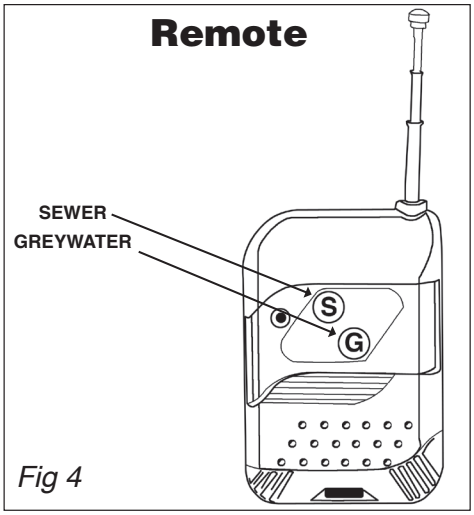

Fig 4

Nipple Installation
See Fig 5
Cut 3 nipples from 2" diameter ABS drain pipe.
One- 2½" long, This goes into the Sewer Outlet Port
Two – 1¾" long, these go into the Inlet and Diversion Outlet Ports.Solvent Cement them into the open ends of the Diverter Body as shown on the illustration. Be sure to use the proper solvent cements for proper adhesion, as there are both ABS and PVC components involved. Measure the entire length of the Diverter Body with nipples, (approximately 14 inches). You will need this measurement later during installation.
Note the labeled parts on the Diverter body: Inlet, Diversion Outlet, Sewer Outlet, and Flow Direction.

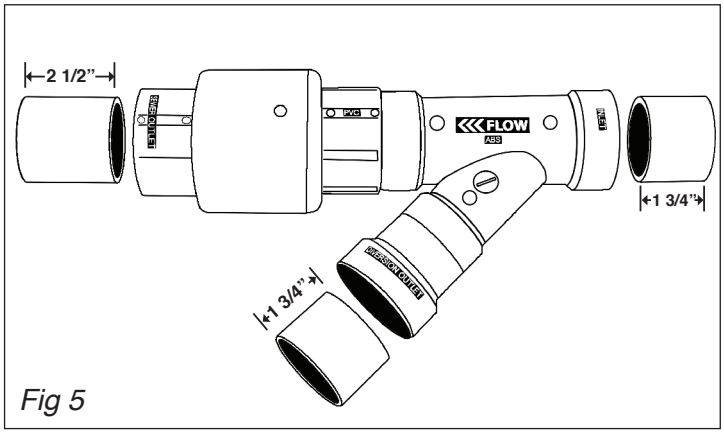

Fig 5

INSTALLATION
Note: This device must be installed in accordance with all applicable building & plumbing codes - including Chapter 16 of the Uniform Plumbing Code.

Facts to keep in mind:
- The Diverter Body should never be installed below-grade or below the level of the sewage waste line.
- On washing machine drains, it should be installed after the vent and trap.
- The unit can be installed in either a vertical or horizontal position.
- The Diverter Body, Control Module and Plugin Power Source must be accessible for service and inspection.

Getting Started

Locate the Plugin Power Source and Control Module in a suitable and accessible location protected from the weather. Any 110 AC outlet will be sufficient as long as it is not in an exterior location or in an enclosed wall. Ideally, the Plugin Power Source and Control Module should be located close to one another for ease of service and maintenance. If the Plugin Power Source and Control Module are not located close to the Diverter Body you may need additional cable. The only requirement is that they all be easily accessible for service.

Any additional cabling or wiring between components should be shielded 3-wire cable #18-22 gauge.

1. Find an appropriate location along the fixture drain lateral for the Diverter installation. (Usually a 2" waste line from the drain fixture before it ties into the 3" sewer line). It's best to find the highest location along the lateral to conserve slope. (1/4"per foot) On shower and bath drains it should be below the P-trap and above the sewer tie in.

2. For a horizontal installation, before cutting into the existing drainage line, be sure to note the direction of flow and secure potential loose ends with plumbers tape support straps to support the weight of the Diverter and maintain the original slope. Ideally, give yourself at least 18 inches of space between the support straps.

3. Use the measurement taken earlier, (approx. 14") of the Diverter Body length and cut a section away from the existing lateral pipe to be replaced by the Diverter Body section.

4. After cutting you should have an opening to fit the Diverter section. Be sure to clean the cut ends of rough edges and debris.

5. Determine the flow direction of the drain line and match it with the Diverter Flow labeling. You will now be connecting the Inlet and Sewer Outlets of the Diverter.

6. *See Fig 6*
Mount the Diverter Body with nipples by using the Fernco connectors (not supplied) onto the open ends of the drainage line, being careful to maintain the established slope of the drain line. Do not tighten the clamps yet, there is a final adjustment to be made, step #8.

7. Connect the Diversion Outlet to your greywater collection plumbing with the Fernco connector. Do not tighten the clamps yet, there is a final adjustment to be made, step #8.

Diverter Body with Fernco Connectors

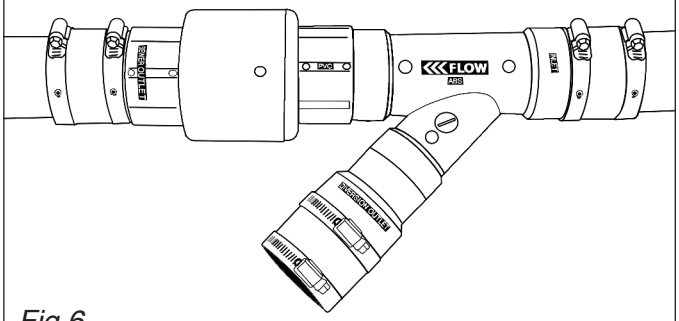

Fig 6

8. *See Fig 7*
In a horizontal installation, the preferred installation would have the Actuator positioned beneath the Diverter Body because of weight and accessibility issues. To establish the proper slope of the Diversion Outlet for proper flow of the Diverter use a bubble level measuring perpendicular to the drain line. If either the top or bottom of the casing were level then the Diverter would be at its proper position. Securely tighten all clamps to all the ports with the Fernco connectors. Do not use solvent cement.

Diversion outlet adjustment

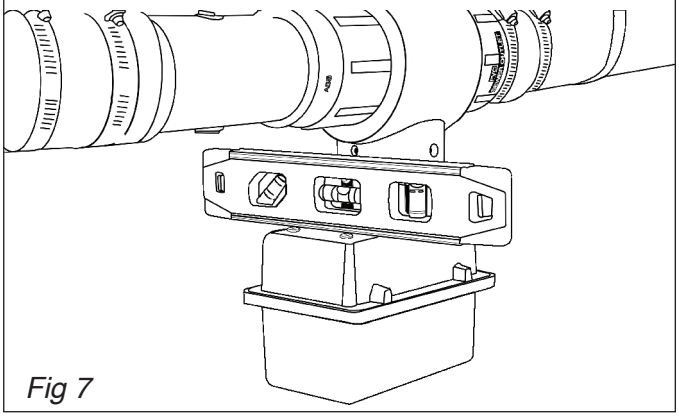

Fig 7

9. Plug the power source into the outlet after connecting all cabling between the Plugin Power Source, Control Module, and Diverter Body. (Extra cabling or wiring between components should be 3-wire #18-22 gauge.)

10. *See Fig 8*
Run water through the drain and Diverter to check for any leakage and to once again confirm operation of the Diverter. Since all the outlets will be sealed, there is a viewing port on the Diverter Body, which will show the color, "Black for Sewer" or "Blue for Greywater". Another way would be to inspect for the graywater leaving the collection plumbing from the house

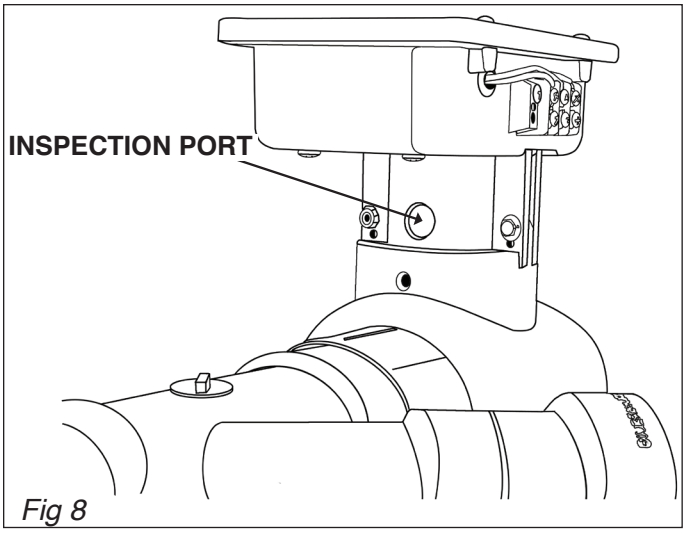

Fig 8

CHECKING THE SIGNAL OF THE REMOTE TRANSMITTER.

Before closing access to the Diverter, have someone activate the Remote Control transmitter from the actual location of the designated drain (shower, laundry room, etc.) to confirm proper signal reception.

The transmitter has a range of approximately 100 yds, depending on building materials. One can confirm operation by hearing the Diverter or by viewing the inspection port for rotation of the actuator inside the Diverter.

In the rare instance when the receiver is not properly responding to the signal, another foot or two of wire may need to be added to the antenna wire extending from the Control Module for better performance.

STUB-OUT INSTALLATION (option for future activation)

See Fig 9

Install the unit as described above except for the electrical hook up sections. If desired, the Control Module and Actuator can be installed in their final locations but do not wire or plug in the Power Adapter until final installation.

The Inlet and Sewer Outlet connections should be installed as per the directions above.
The Diversion Outlet should be capped off until a later date. Use a shielded connector on this outlet for ease of later change out.

As a Stub-out, the Diverter must be installed in the open position to the sewer. The Actuator must not be connected to electrical power.

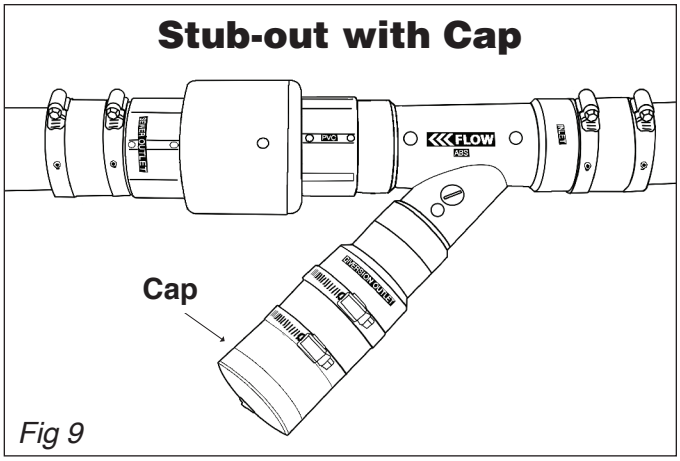

Fig 9

OPERATION

See Fig 4

Operating the Diverter is simple using the Wireless Remote Control unit:
Press the "**G**" button (for **G**reywater) for Diversion to your greywater reuse system.
Press the "**S**" button (for "**S**ewer") water to be sent down to the main sewer line.
The Diverter will cycle to the desired mode in approximately 4-5 seconds. The Diverter will stay in that mode until the other button is pressed to activate a change of mode for the destination of the drain water.

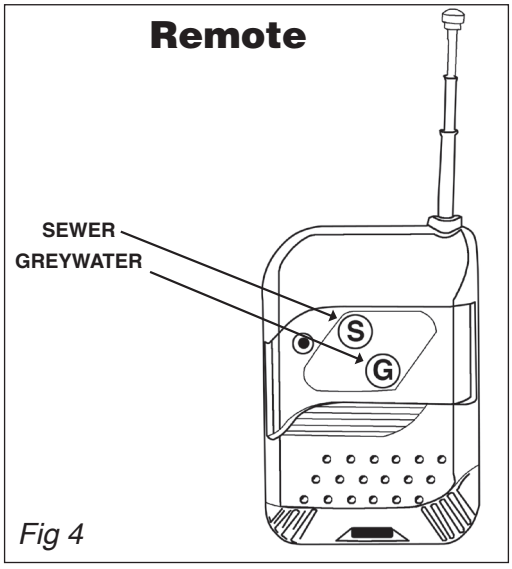

Fig 4

Emergency Fail Safe Feature

If there is a power outage, the Diverter has a battery powered fail-safe backup. The Diverter will automatically cycle itself to the open sewer position until power is restored and the user reactivates the valve.

Maintenance

To keep the Diverter clear of debris buildup, the Diverter should be cycled through both open and closed positions with running water at least two times a month.

The Diverter should be inspected annually for leakage, debris buildup, and proper operation. The Diverter can be inspected or serviced by loosening the connector clamps and removing the unit from the pipes without cutting.

See Fig 8
The Failsafe mode should be checked at this time. Start with Diverter in the greywater mode and then disconnect the power either from the wall socket or the Control Module. As the power is removed the failsafe will activate the Diverter to the sewer mode. There is a inspection port on the base of the actuator that will show “Black”, when in correct failsafe mode.

See Fig 2
The batteries in the Control Module and Remote Control should be checked or replaced every 12 months. The battery used in the Control Module is a Tenergy, rechargeable 9v, 250mAh, NiMH and is available from most electronics dealers, including Amazon.
The battery in the Remote Control, is an alkaline 12v #23A
Be sure to note the polarity when removing and replacing batteries.

Never use a Lithium type battery as a replacement, as it would create a fire hazard and void all certifications and warranties for this device.

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