HYDRO-GUARD®

HG-8 Cold Climate Flushing System

WARNING:
Platform weight is approximately 60 lbs. Use proper lifting tools and techniques when loading and/or unloading device and lowering flushing components into housing to avoid accidental drops and subsequent damage to the device.
1. Each person involved in the assembly, installation and/or maintenance of the Hydro-Guard Automatic Flushing Device must read this manual carefully and follow all instructions prior to performing any installation or maintenance procedures involving the Unit.
2. Verify the drainage path prior to installation to ensure that pedestrian and vehicular hazards will not be created by the installation and use of the Hydro-Guard Automatic Flushing Device (in areas in which freezing may occur, special attention should be given to this procedure).
3. Never assemble, disassemble, or perform Hydro-Guard maintenance unless the influent supply valve has been closed, verified and secured, and internal piping pressure has been relieved.
4. Always use all necessary safety equipment and follow all recommended procedures when installing, operating and maintaining the Hydro-Guard Automatic Flushing Device.
5. Perform annual safety inspections and replace worn or defective parts.
6. Operate the Hydro-Guard Automatic Flushing Device only when fully installed and correctly assembled.

CAUTION:
The recommended optimal operating pressure for a Hydro-Guard® Automatic Flushing System is between 20psi and 120psi. In the event pressure may exceed 120psi it is recommended that a Pressure Regulating Valve be installed ahead of the Hydro-Guard flushing system.

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GENERAL

Overview
The Hydro-Guard® HG-8 Cold Climate Unit, is the industry’s only patented, Sub-Surface Discharge, programmable flushing apparatus. This Unit is suitable for year-round use in cold climates. This Automatic Flushing System has been designed, engineered, and manufactured to provide outstanding dependability and performance.

Please read and retain this manual for future reference, training, troubleshooting, and maintenance.

INSTALLATION

Hydro-Guard® HG-8 Cold Climate Flushing Unit
The Hydro-Guard® HG-8 Unit is housed in a Mueller® Thermal-Coil® Box that is approximately 21 inches in diameter. The bury depth will vary depending upon the depth of the utility’s water lines. The box is constructed with low lead NTP male threads and is to be placed by the contractor at a location agreed upon by the end user. The box features coiled tubing that will route water from the water utility’s potable water distribution line to the meter assembly, through the HG-8’s flushing components, and discharge through a discharge service routed to an acceptable point of discharge (i.e., a storm sewer, swale, storm pond, etc.). The meter and flushing assembly can be raised for maintenance and repair and then lowered back down into the box below the frost line. A medium density foam insulation pad, freeze protection system, and composite lid help protect the flushing and meter assembly from freezing in the winter.

WARNING: Proper lifting, loading/unloading tools and techniques must be followed when handling this device. Damage to working components can occur if dropped.

Site Evaluation
Each Hydro-Guard® Unit installation is unique and will require a minimum of advance planning. Prior to the installation of the device, the drainage patterns for the intended installation location should be reviewed. The drainage pattern must permit discharged water to flow away from the Hydro-Guard® Unit. Discharged water flushed from the Hydro-Guard® Unit must be routed away from the device. It is recommended that a 6” catch pipe (by others) be installed inside of the HG-8’s external cabinet. The catch pipe shall be mounted at least 3” under the discharge piping of the HG-8 (see Typical Installation illustration). The 6” pipe shall be installed a minimum of 24” below grade before a 90-degree bend or pipe size reduction. If desired, the 6” pipe can be reduced to a 3” or 4” pipe to continue the routing of the flow to a final discharge point. The recommended final discharge points may include a storm drain, drainage or retention pond, or a storm swale.

Installation Instructions

1. Remove the Hydro-Guard® Unit from its packaging and inspect for possible damage during shipping.
2. Turn off the service line feed.
3. Excavate a suitably sized ditch ensuring it is connected on one side to the utility’s service line trench. Remove any debris that might create uneven pressure on the Unit. Compact the bottom of the hole in order to minimize settling after installation. Place #57 stone. Then, place non-compacted clean bedding material within the bottom of the hole. Provide a bed of crushed gravel approximately 6 inches thick or place bricks or cement blocks below the pit to allow for drainage and provide support.
HYDRO-GUARD® HG-8 Cold Climate Flushing System
Installation Instructions & Programming Unit

INSTALLATION – (continued)

4. Slowly lower the Hydro-Guard HG-8 Cold Climate Flushing System into place, pressing it firmly into the non-compacted bedding material within the bottom of the hole.
5. Bury the pit so the top edge is at ground level.
6. Install the top approximately 1 1/2” below existing grade and ensure the meter lid is level with existing grade.
7. Place the pit in the excavated area and connect the inlet piping. Hand-tighten the fitting to the pit, then turn two full turns with a wrench. This will result in a leak-tight connection, without placing undue stress on the pit piping.
8. We recommend installing approximately 10 ft. of pipe to the outlet connection so the plumber that is completing the service installation does not have to disturb the connection to the pit and possibly overtightened the connection or otherwise affect the contractor’s proper installation of the pit itself.
9. Backfill the hole around the flushing device with clean fill and/or #57 stone. Backfilling should be accomplished 12 inches at a time and hand-tamp each layer until the service grade is restored.
10. After installation is complete, sod the area around the Hydro-Guard® Unit or take other steps in order to prevent erosion.
11. Disinfect the Hydro-Guard® Automatic Flushing Device in accordance with the utility’s policy. DO NOT exceed the dosage and contact times recommended by the American Water Works Association.
12. The Hydro-Guard® Automatic Flushing Device may now be programmed.
13. Once programming has been set, slowly lower the flushing/meter assembly into the lower part of the protective, below-grade, meter box. Insert the foam pad insulator and install cast iron meter lid.

WARNING: We Do NOT recommend the following:
1) Dumping fill material on top of the pit; 2) Using machinery to compact backfill.

PROGRAMMING HYDRO-GUARD® UNIT FOR OPERATION

HG-8 (Requires Handheld)
TBOS-II Programming Instructions
The TBOS-II handheld uses on screen prompts for intuitive programming. It will control current programming interface (T-2 – dark gray case), as well as the previous model of programming interface (T-1 modules programmed by the TBOS-US handheld).

Features
• 1 to 24 possible flushing events daily, or on selected days weekly, 365-day calendar
• Flush duration 1 minute to 12 hours (1 minute increments)
• Preprogram and store up to 3 different schedules
• Rechargeable battery (low battery indicator shows both handheld and controller battery conditions) with recharging adaptor (9-volt lithium battery can be used in the built-in programming interface)

NOTE: In that the handheld was designed by its manufacturer to program irrigation systems, many displays use irrigation terminology. In the following instructions, in such cases the equivalent flushing terminology is shown in parentheses.

CAUTION: Leaving the infrared connector connected to the built-in programming interface can significantly reduce the battery life of the 9-volt batteries in the programming interface and the rechargeable battery in the TBOS-II handheld.

TBOS-II Handheld Keys
HOME – press three seconds to turn handheld on.
ABC – press to choose from three available programs (to store a program when preprogramming, or uploading a program to controller).
LEFT and RIGHT ARROWS – move curser left or right, also go back or forward one screen.

ON and OFF/+ and – /UP and DOWN ARROWS – Used to set flushing events on or off, move selector up and down on screen, or increase or decrease duration and other values.
OK – press to make selection final.

TBOS-II Handheld Home Screen Menu
1. TBOS infra-red – accessible only when connected to programming interface via the IR cable: select to connect handheld to programming interface via infrared cable and access programs on it, or to transfer programs from handheld to programming interface.
2. Templates (TBOS-II) – select to program handheld without connecting to programming interface.
3. Settings – select to access and set time, date, and various other available user settings.
HYDRO-GUARD® HG-8 Cold Climate Flushing System

Programming Unit

First Time Use
1. Press HOME key for three seconds to turn on handheld.
2. Press RIGHT ARROW key or the OK key to access “Settings”.
3. Use DOWN ARROW to select and set the following:
   a) Date and Time
   b) Contrast of the screen
   c) Name of the handheld controller (can be assigned to a specific operator)
   d) Language (English, French, Spanish, Italian, Dutch, Portuguese, Turkish, etc.)

Programming Flushing Schedule
There are two ways to proceed:
• select “TBOS-II infra-red” if IR cable is connected to a TBOS-II programming interface to access, change or load programs there, or
• select “Templates (TBOS-II)” to create or change programs stored on the handheld to load onto a programming interface at a later time (IR cable not used).

NOTE: The home screen for “TBOS-II infra-red” shows battery condition for programming interface and ON/OFF state of any current operation in progress.
1. Press HOME key for three seconds to turn handheld on.
2. Press RIGHT ARROW key or the OK key to access “Settings”.
3. Use DOWN ARROW to select “Templates” and press OK.
4. Use DOWN ARROW to select “Programs” and press OK.
5. Use DOWN ARROW to select “Watering Days” (Days to Flush) and press OK.
6. Use UP/DOWN ARROWS to select one of the following:
   a) Custom Cycle (Week); use RIGHT/LEFT ARROWS to move to days of the week, use ON/OFF keys to highlight days on which to flush, then press OK to confirm days when selections are complete.
   b) Even Days: to Flush on even dates, press OK to set.
   c) Odd Days: to Flush on odd dates including 31st, press OK to set.
   d) Odd Days 31: to Flush on odd dated except 31st, press OK to set.
   e) Cyclic: to Flush every “X” days, set “X” using ON/OFF keys (X=1 to 31), press OK to set; then set start date “dd/mm/yyyy” using ON/OFF keys, press OK to set.
7. Use LEFT ARROW to navigate back to the program “Settings” menu.
8. Select “Start times”, press OK to set.
9. Use ABC to select program to be set up.
   a) Set hours and minutes for each start time (up to 8 per program) using ON/OFF keys, press OK to set each (hours are indicated using 24 hour clock). [When exiting this screen, start times will automatically sort into chronological order.]
10. Use LEFT ARROW to navigate back to the program “Settings” menu.
   a) Use DOWN ARROW to select “Valve Run Times” (Flush Duration), press OK to set.
   b) Use ON/OFF keys to select program A, B and/or C (one or more can be assigned).
   c) Then use ON/OFF keys to set Flush duration (hours and/or minutes) for program just set, use LEFT/RIGHT ARROW keys to move between hours and minutes and + and - keys to set times (1 minute to 12 hours), press OK to set.

Transmitting Time, Date and Programs to Programming Interface, Clearing/Checking Programs, Manual Start
Connect handheld to programming interface using IR cable.
1. To transmit: from home screen, use DOWN ARROW to select “TBOS-II infrared” and press OK. TBOS-II handheld will receive data (settings) from built-in programming interface.
2. Once data receipt is complete press RIGHT ARROW to move to “Settings” menu.
3. From “TBOS-II infra-red” settings screen select “Transmit” and press OK again. When program to be transmitted appears, press OK to confirm.
4. To clear programs A, B, or C: from “TBOS-II infra-red” welcome screen, use DOWN ARROW to select “Clear Programs” and press OK, then select type of program to clear and follow prompts.
5. To check programs A, B, or C: from “TBOS-II infra-red” welcome screen, use DOWN ARROW to select “Programs” and press OK, then select what is to be checked and follow prompts.

Manual Flushing
Using TBOS-II handheld on the T-2 built-in programming interface (dark gray in color).

NOTE: Manual start cannot be initiated if there is no program in the programming interface.
1. To start manual flushing from “TBOS-II infra-red” welcome screen.
   a) Use DOWN ARROW to select “Manual Watering” (Manual Flush) and press OK.
   b) Select “Start Valve” (Open Control Valve) then using ON/OFF keys select “Valve 1” and press OK.
   c) Use ON/OFF keys to set the manual Flush Time (1 minute to 12 hours) and press OK to confirm. Flushing will start after a four (4) second delay.
Stop Manual Flush Sequence
1. Reconnect IR cable to built-in interface, then hold down HOME key on handheld.
2. Use RIGHT ARROW to select "TBOS-II infra-red" menu and select "Manual Watering."
3. Select "Cancel Irrigation" to cease the manual flush sequence.

Communication Failure:
Possible Causes /Solutions
1. The built-in programming interface's battery is low or out of power or the rechargeable battery in the Handheld Programmer is low or out of power; replace battery in interface and keep rechargeable battery fully charged.
2) There might be a problem with a connection or solenoid. Perform an electrical system check of wiring and solenoid.

NOTE: The built-in interface's internal memory lasts only 3 minutes. Any time the battery within the Programming interface fully discharges, it is necessary to plug the Handheld Programmer directly into the interface and reprogram the Unit. While repeating the programming steps is only a minor inconvenience, a proactive approach to battery maintenance will serve to alleviate the frequency with which these steps must be completed.

For all other programming questions, please refer to the Hydro-Guard® Programming Guide. If the information you require is not available therein, please contact Hydro-Guard® Customer Service at 877.864.8500.

HG-8 Built-In: (Integrated)
NODE Programming Instructions

Batteries
The NODE uses standard 9-volt alkaline batteries to operate the control valve and program the controller. The controller can operate with one or two batteries installed.

Under normal conditions, expected life is 1 year for a single battery and two years when using two.

Battery Installation
1. Unscrew rear body of the NODE to gain access to battery compartment.
2. Insert battery/batteries into battery tray and connect the battery connector to controller.
3. Make sure no water is inside battery compartment.
4. Screw the NODE rear body back onto front half.

NOTE: Make sure that seal marker on rear half of the NODE lines up with front half, ensuring a proper seal is created. Also, The NODE has non-volatile memory, which allows battery replacement without losing program information.

Idle Mode – Waking Up
Normally the NODE display shows time and day, day of week, and battery life indicator. During a short period of inactivity the display will shut off to retain battery power.
Pressing any key will wake up the NODE to the Idle Mode.

Run Mode
When controller is operating a program, items shown on display will include station number (always “1”), program letter (A, B, or C), remaining runtime, and a blinking Rotor icon.

Programming
The NODE has the capability to hold 3 programs (A, B, C) and 4 start times per program. When programming, flashing portion of display can be changed by pressing + or - keys. To change something not flashing, press LEFT or RIGHT ARROWS until desired item is flashing.

Setting Date/Time
1. Press RETURN/ENTER key until CLOCK icon is displayed.
2. All 4 digits will be displayed representing the year. Use + or – keys to change year. Press RIGHT ARROW key to proceed to setting month.
3. All 4 digits will be displayed with two digits on left flashing representing the MONTH. Use + or – key to change month. Press RIGHT ARROW key to proceed to setting DAY.
4. Only two digits on right will be flashing, representing the DAY. Press + or – key to change day. Press RIGHT ARROW key to proceed to changing TIME.
5. The AM/PM/24 time setting is shown flashing. Press + or – key to change AM, PM, or 24-hour time. Press RIGHT ARROW key to proceed to setting the HOUR.
6. All 4 numbers are shown with two numbers on the left flashing, representing the HOUR. Press + or – key to change the hour. Press RIGHT ARROW key to proceed to change the MINUTES.
7. All 4 numbers are shown with two numbers on right flashing, representing MINUTES. Press + or – key to change minutes. (Pressing RIGHT ARROW key will return to YEAR setting at step #2.)
8. Press RETURN/ENTER key to proceed to next programming function, or allow controller to return to idle mode.
**HYDRO-GUARD® HG-8 Cold Climate Flushing System**

**Programming Unit**

**Setting Flush Sequence**

**Start Times**

1. Press RETURN/ENTER key until CLOCK icon is displayed.
2. The START TIME will be displayed flashing, along with the program letter (A, B, or C) and start time number (1, 2, 3, or 4) in the upper left. Up to 4 different start times can be set for each program.
3. Use + or – key to change START TIME for program displayed. Each press of key will change start time in 15-minute increments.
4. Press RIGHT ARROW key to add an additional START TIME to program displayed. The start time number is shown in upper left corner of display.
5. Press PRG key to add START TIME to a different program.
6. Press RETURN/ENTER key to proceed to next programming function, or allow controller to return to idle mode.

**Setting Flush Duration Times**

1. Press RETURN/ENTER key until HOURGLASS icon is displayed. RUN TIME will be displayed flashing. Also shown is program letter (A, B, or C) and active station number (always #1) will be displayed in lower left side of display.
2. Press + or – key to change station RUN TIME from 1 minute to 6 hours.
3. Press PRG key to add a RUN TIME to another program.
4. Press RETURN/ENTER key to proceed to next programming function, or allow controller to return to idle mode.

**Setting Flushing Days**

1. Press RETURN/ENTER key until CALENDAR icon is displayed. The program letter (A, B, or C) will be displayed. Arrows point at specific days of week in which flushing will occur.
2. Press LEFT or RIGHT ARROW to scroll through days.
3. Press + key to activate that day for program displayed, or – key to cancel watering for that day. The arrow will show on flushing days for active program.
4. Press PRG key to set days to flush for a different program, if desired.
5. Press RETURN/ENTER key to proceed to next programming function, or allow controller to return to idle mode.

**Manual Flushing**

Manual flushing allows user to test the Hydro-Guard® unit or a program for a specified run time.

Make sure controller is in Idle Mode.

1. Press and hold RIGHT ARROW until HAND icon is displayed. The station number (always #1) will be displayed in lower left side of display along with RUN TIME.
2. Use the LEFT or RIGHT ARROW to select #1 station if not already displayed, and + or – key to set manual flushing time.
3. To manually activate a program, press PRG key. Program letter (A, B, or C) will show on screen. If a different program is needed, press PRG key until desired program is displayed.
4. To stop MANUAL FLUSHING cycle press – key until time is reduced to zero.
5. Press RETURN/ENTER key to proceed to next programming function, or allow controller to return to idle mode.

**NOTE:**

– Pressing + or – key when running in MANUAL FLUSH mode will modify FLUSH TIME for that station.
– Pressing the button when a station is running in manual watering will stop irrigation on the current station and advance to the next station.
– Pressing the button when a station is running in manual watering will stop the irrigation on the current station and revert to the previous station.

**Turn System Off**

To turn off controller, press RETURN/ENTER key button until icon resembling water spray and OFF is displayed on screen. To return controller to auto programming mode, press RETURN/ENTER key. The controller will immediately return to auto programming mode and will display time and battery life indicator.

**NODE Quick Check**

This circuit diagnostic procedure can quickly identify “shorts” commonly caused by faulty solenoids or when bare common wire touches a bare station control wire. To initiate NODE Quick Check procedure:

1. From Idle Mode, press and hold +, –, LEFT ARROW, and RIGHT ARROW keys.
2. Display will show all segments. Release keys.
3. Press + key to initiate NODE Quick Check test.
4. Controller will then activate flushing unit for 1 second to verify operation.
TOOLS NEEDED: Philips screwdriver, flat-head screwdriver, HG-20087 T-handle wrench

Although the Hydro-Guard® HG-8 Cold Climate Sub-Surface Unit was delivered completely assembled, it may be necessary and/or desirable to disassemble portions of the Unit, or the Unit in its entirety, in order to allow for required service and maintenance. If disassembly is necessary, please follow the directions below. Always close the curb stop before working on the unit.

Disassembly
1. Shut off water supply to the unit and remove the green housing cover.
2. Remove the composite or cast iron lid of HG-8 protective ground sleeve.
3. Remove foam insulation pad.
4. Using the lifting holes and/or lifting strap in the steel platform, raise the flushing system meter assembly to top of meter box and lock into place.
5. Modular design of valve and double check valve allow for service to be completed without removal of the devices’ bodies from the piping assembly.

Electrical System Check
1. Pull internals of HG-8 to top of PVC in-ground protective housing and lock into place.
2. Unscrew solenoid from valve—be careful to not drop the solenoid plunger and spring into in-ground housing.
3. Using the TBOS-II handheld, connect the infrared connector of the handheld to the antenna on the controller interface mounted inside of the device. Using the programming keys of the handheld run a 2 minute manual flush sequence.

NOTE: Plunger inside solenoid should be down when running and up when off.

Valve Disassembly and Check
1. Remove six (6) bolts from top cover.
2. Slowly pull cover off the valve.
3. Remove rubber diaphragm and inspect for holes or worn areas.
4. Be certain to avoid contacting the EPDM rubber diaphragm with pipe putty. Pipe putty can cause the rubber to thin out and leak.
5. Remove the valve screen plug on the lower half of the valve body. Be careful not to exert too much force when pulling plug out.
6. Check for debris in the valve screen on the inlet side with the lower half of the valve body by removing the valve screen plug.
7. Return valve plug to its proper location when debris screen is cleared.
8. Replace the top cover back onto the diaphragm – make sure to line up the openings in both.

9. Match up the top cover of the valve with the bottom portion. The arrows have to align on both portions.
10. Replace the bolts and tighten down.

WARNING: Avoid overuse of pipe sealant and never allow sealant to come into contact with EPDM rubber diaphram.

Reassembly
1. If any disassembly has been conducted of the control valve and/or double check valve, verify that all bolts are properly tightened. Check assemblies for leakage prior to lowering flushing/metering assembly back into position below grade.
2. Using lifting holes and/or lifting strap on steel plate, lower flushing/metering assembly below grade by slowly lowering the steel mounting plate to the lower part of the in-ground protective housing (DO NOT apply excessive force to assembly).
3. Turn water supply to the unit on. Using the TBOS-II handheld controller, run a two minute manual flushing procedure to confirm all components are operational.
4. Return insulation pad and cast iron lid to their proper location.
HYDRO-GUARD® HG-8 Cold Climate Flushing System

Troubleshooting

TROUBLESHOOTING THE PROGRAMMER

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<th>SOLUTION</th>
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<td>Controller does not flush as desired</td>
<td>Water at main water supply is shut off</td>
<td>Check main supply valve</td>
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<tr>
<td>Battery dead</td>
<td></td>
<td>Replace battery</td>
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<tr>
<td>Controller set to OFF</td>
<td></td>
<td>Set controller to desired program</td>
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<tr>
<td>Controller improperly programmed</td>
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<td>Check program and clock settings</td>
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<tr>
<td>Blank display</td>
<td>Battery dead</td>
<td>Replace battery</td>
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<tr>
<td>Water does not turn off</td>
<td>Overlapping programming</td>
<td>Review all programming and edit any program that is in conflict with desired off schedule Clear all programming in memory and reset</td>
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</tbody>
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**If your Hydro-Guard® Unit does not activate:**

**Possible Causes**
- Water pressure off or low.
- Batteries weak or dead.
- Connection loss from controller to solenoid.
- Solenoid not working properly.
- Obstruction in flow of water.

**Try this Correction**
- Check if curb stop is open.
- Change batteries.
- Check connections for corrosion, breaks, or lack of connection.

**The Hydro-Guard® Unit will not shut off:**

**Possible Causes**
- The solenoid is stuck in the open position or debris is interferring with the plunger.
- Batteries weak or dead.

**Try this Correction**
- Run a manual flush for 1 minute.
- Change batteries.
- Check connections for corrosion, breaks, or lack of connection.
- Check the adapters and solenoid for debris – Run the electrical systems check.
- Refer to valve troubleshooting for possible corrective measures.
The following is a brief overview and introduction to Hydro-Guard® Options.

**Integrated Sample Station**
The HG-8 Cold Climate Sub-Surface Discharge Unit, features a Sample Port quick connect that allows the end user to collect a sample from the HG-8 installation site. To collect a sample from the sample quick connect the HG-S116 Portable Sample Valve will be required. (Recommendation: one HG-S116 per every five HG-8 units) You may wish to run a brief manual-mode flush prior to the collection in order to ensure water indicative of the main-line water quality is being sampled. Generally a two-minute flush is sufficient. Track your residual levels and alter flushing frequency and/or duration in order to maximize water conservation.

**Dechlorination**
The Hydro-Guard® HG-8 is equipped with a dechlorination system. Dechlorination takes place as a portion of the discharged water passes through a housing containing either sodium sulfite or ascorbic acid tablets. This action creates a concentrated dechlorination solution that then mixes with the non-directly treated portion of the discharge to effectively dechlorinate the entire discharge volume.

**S.M.A.R.T. Monitoring and Flush Management**
The Hydro-Guard HG-8 can be upgraded to include a S.M.A.R.T. controller and a variety of water quality sensors. The S.M.A.R.T. equipped HG-8 will allow a utility to remotely monitor, in real-time, the water quality at a specific flush point and automatically initiate a flush event when water quality conditions warrant.

The Hydro-Guard® S.M.A.R.T. flushing system:
- Monitors chlorine levels (total or free).
- Flushes distribution line when residual disinfectant drops below acceptable levels.
- Monitoring of pH, flow, temperature or turbidity available.
- Two-way real-time communication via cellular, wifi, ethernet or BlueTooth®.

**BATTERY REPLACEMENT**

1. Remove composite or cast iron lid and insulation pad.
2. Using the lifting holes and/or lifting strap in the steel mounting platform, raise the internals of the HG-8 to the surface.
3. HG-8 Removable (T2) Programming:
   - Unscrew the grey cap off the watertight housing of the integrated T-2 programming interface. Pull the battery box out of the watertight housing. Replace 9-volt battery with a 9-volt lithium battery.

**HG-8 Built-In (NODE) Programming**:
- Unscrew cap from bottom of NODE programmer housing. Insert two 9-volt alkaline batteries. Tighten cap completely to ensure a water tight fit.
- Place the battery back into the watertight integrated T-2 programming interface making certain to tighten the screw-on lid until snug.
4. Return the internals of the HG-8 to its proper location.
5. Return the insulation pad and cast iron lid to their proper locations.
## REPLACEMENT PARTS

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<td>546787</td>
<td>Composite or Cast Iron Vault Lid</td>
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<td>546799</td>
<td>HG-8 Plate Rest</td>
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<td>546785</td>
<td>2” Foam Insulation Pad</td>
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<td>21” Ø Below-Grade Vault</td>
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<td>Reinforcing Ring</td>
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<td>014215 330N</td>
<td>1” Meter Coupling</td>
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<tr>
<td>13</td>
<td>024265 1 330N</td>
<td>1” Ball Angle Meter Valve</td>
</tr>
<tr>
<td>14</td>
<td>014210 1 330N</td>
<td>1” Meter Coupling</td>
</tr>
<tr>
<td>15</td>
<td>700507 Flow U-Bar</td>
<td>w/ Hole for FP</td>
</tr>
<tr>
<td>16</td>
<td>HG-FP100</td>
<td>Thermal Control Valve</td>
</tr>
<tr>
<td>17</td>
<td>5461219</td>
<td>Coated Steel Mounting Platform</td>
</tr>
<tr>
<td>18</td>
<td>700507</td>
<td>U-Bar</td>
</tr>
<tr>
<td>19</td>
<td>546596</td>
<td>Latching Solenoid</td>
</tr>
<tr>
<td>20</td>
<td>HG-FP108C</td>
<td>Molded Freeze Adapter / Gasket</td>
</tr>
<tr>
<td>21</td>
<td>HG-11010</td>
<td>1” Flow Control Valve</td>
</tr>
<tr>
<td>22</td>
<td>HG-V139</td>
<td>¾” Poly Tubing</td>
</tr>
</tbody>
</table>

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**Diagram:**

- Part 1: Composite or Cast Iron Vault Lid
- Part 2: HG-8 Plate Rest
- Part 3: 2” Foam Insulation Pad
- Part 4: 21” Ø Below-Grade Vault
- Part 5: 9-Volt Lithium Battery
- Part 6: 1” Valve & Meter Replacement Assembly
- Part 7: Reinforcing Ring
- Part 8: 1” Coiled Tubing Assembly
- Part 9: 320 Inline Dechlorination Assembly
- Part 10: Thermal Control Valve
- Part 11: 1” Backflow Double Check Valve
- Part 12: 1” Meter Coupling
- Part 13: 1” Ball Angle Meter Valve
- Part 14: 1” Meter Coupling
- Part 15: U-Bar with Hole for FP
- Part 16: Thermal Control Valve
- Part 17: Coated Steel Mounting Platform
- Part 18: U-Bar
- Part 19: Latching Solenoid
- Part 20: Molded Freeze Adapter / Gasket
- Part 21: 1” Flow Control Valve
- Part 22: ¾” Poly Tubing