

AQUA-PROTEC USER GUIDE

July 2019



Document Revisions

Date	Version Number	Document Changes	Modified by
28/02/2019	1.0	Initial Draft	Anthony Boisvert
07/06/2019	1.0	Grammar & Syntax Correction	Brian Patriquin
10/06/2019	1.0	Syntax & Consistency	Rob Rudan
30/07/2019	1.0	Pictures and layout improved	Anthony Boisvert

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Introduction

Scope and Purpose

Please read through this document before starting to use the product.

Aqua-Protec is designed to protect you, your family, your structure and all your possessions stored in the basement.

Aqua-Protec is an automatic, electro-pneumatic device installed to protect you against any sewage discharge back-flow event. Unlike conventional mechanical valves which require regular maintenance, the Aqua-Protec system is completely automated, and reliable without the need for regular cleaning. It is comprised of a control panel, a 17' umbilical (containing both pneumatic hose and electronic connection) cord and a Retractable Pneumatic Sealing Module (RPSM – or, “Bladder”). The RPSM is equipped with water-sensitive sensors which, in case of sewer backup, are triggered, sending a signal to the onboard compressor to deploy the RPSM by filling it with 11.5 PSI of air pressure, causing the RPSM to expand firmly into the 4” sewage drain pipe. This manual gives directions on how to use your Aqua-Protec.

Getting started

Once you have received this manual, the Aqua-Protec system is already installed and ready to protect you against a sewer backup.

The Aqua-Protec system is an automatic system. This means that when functioning normally and without any user input, the Aqua-Protec system will always block sewer backups and warn you when it is deployed as well as when it returns to standby once the threat is removed.

The system is code configured and its operation can't be interrupted or reconfigured by a user, even if they touch all of the buttons. This guide will show you how to understand the system events, history, behaviour and light maintenance such as the battery backup replacement. Under normal operating conditions, the battery should last for 10 years.

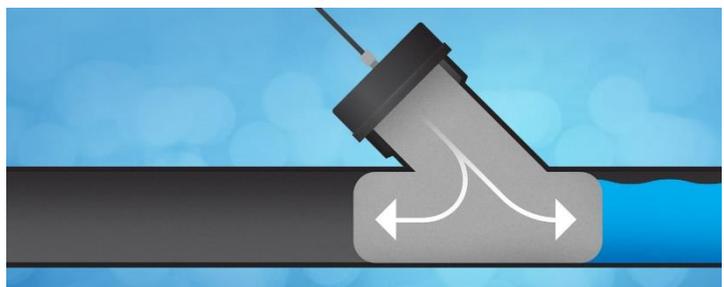
In addition to protecting against sewer backups, the Aqua-Protec system will detect any abnormal level of waste water inside the sewer line. This means that the system could detect a blockage, roots, crushed pipe or any problem that could cause a high level of waste water in the sewer line.

How It Works

In case of a sewer backup, sensors will detect the high level of water in the sewer line. After 5 seconds of continuous detection, a signal will be communicated to the control panel.

Air will be compressed into the bladder which will seal the sewer pipe and protect your residence.

Once the system inflates to block a sewer backup, it will remain inflated for 30 minutes after the last water detection. The 30-minute countdown is in place to prevent sewer backup to push back at full pressure once we unseal the sewer line.



Once the 30-minute countdown is done, the system will deflate and return to standby mode. The system will wait for the next sewer backup event.

No action is needed from either the user or plumbing company after a sewer backup unless an error code is shown on the LCD screen.

Your Aqua-Prottec control panel

1. Aqua-Prottec Control Panel



How to navigate

The control panel gives you access to changing the date and time, viewing history of sewer backups blocked and the version number.

You can navigate throughout the Aqua-Protec control panel menu via the navigation keys.

Almost everything will be done via those keys.



- **Up / Down** -> Navigate through menu items or change value
- **Left** -> Go back at the previous menu
- **Right** -> Select that item



The “OK” button function is to gain access to the main menu only

The “Mute” button will mute any audible alarm without interrupting the device operation. At any time, the system starts buzzing, you can mute the alarm by pressing the mute button.



The arrow on the left of the LCD screen will show you which menu item is selected.

LED Chart



Solid Green _____ = System is powered and in standby mode

Flashing Green _____ = Battery or power supply is disconnected. The system is in standby mode.



Solid Red _____ = System is Inflated, the sewer sealed, DO NOT USE WATER

Flashing Red _____ = Battery or power supply is disconnected. System is inflated, the sewer is sealed, DO NOT USE WATER.



Yellow _____ = Each time water is detected by the system, the yellow light will be on

Information Displayed

Here is a list of messages you can see on the control panel screen of Aqua-Protec:

Messages	Description
STANDBY	Aqua-Protec is waiting for the next sewer backup
WATER DETECTED	Aqua-Protec detects water. If detection last more than 5 consecutive seconds, Aqua-Protec will switch to “ALERT mode”
ALERT mode	Sewer backup situation is occurring
INFLATION	Aqua-Protec inflates the RPSM (bladder)
KEEP	RPSM (bladder) is sealing the sewer. Do NOT use water services.
DEFLATION	Aqua-Protec deflates the RPSM (bladder)
SEWER FREE	RPSM (bladder) is retracted and sewer is free
SEWER SEALED	SEWER is sealed. DO NOT use any water services: toilet, dishwasher, washing machine, shower, etc.
MANUAL CONTROL	Aqua-Protec is in manual mode and will NOT detect water. Technician forgot to return to automatic mode. Call back the installer or technical support: 1-877-287-7777.
OUT OF ORDER	Aqua-Protec faced an abnormal situation and needs assistance from a certified technician. Call your local supplier or our technical support: 1-877-287-7777.

What to do in an event of an alarm

1. **Go to the control panel location and press on the mute button to mute the alarm**
2. Press on the down arrow, the LCD screen should light up
3. Read what the LCD screen says (Standby, Alert Mode, Maintenance Required) and refer to the right section of this document

Aqua-Protec Standby

1. If the screen shows standby and the system was buzzing, this means that the sewer backup deployment event has just finished

You don't need to do anything; the system is in standby mode and will wait for the next sewer backup.



Aqua-Protec Alert Mode

1. If the Aqua-Protec is in alert mode, the red light should be on.
2. When the system is in alert mode, you **MUST NOT** use any appliance or fixture that uses water since your sewer pipe is sealed.
3. You need to wait for the system to deflate itself automatically. The countdown before the deflation will be shown on the LCD screen.
4. When the system deflates, a continuous buzzing sound will be emitted to warn you that the sewer backup event has finished



Aqua-Protec Maintenance Req.

1. If the Aqua-Protec is in maintenance required mode, the green or red light should be flashing
2. If the red light is on, you **MUST NOT** use any appliance or fixture that uses water since your sewer pipe is sealed.
3. If the system is in maintenance required mode and the red light is on, this mean that the system detected a problem while blocking the sewer backup. Once the backup is finished, we recommend looking up the definition of the error code on Page 13. If the error code is related to the air pressure, you should report it to your installer as soon as possible.



History

The Aqua-Protec system records every sewer backup event in his memory. You can access this history to know how many sewer backups your system has blocked over the years.

The history won't show any troubles or fault in the history but only actual sewer backups.

To access the "**history**" section of the control panel follow this procedure:

1. Press on the "**OK**" button to gain access to the main menu
2. Press on the "**down arrow**" one time so that the arrow on the LCD screen is aligned with "**History**"
3. Press on the "**right**" arrow to select history

The history will be then shown. If only the title "**History**" is written on the LCD screen, that means that no sewer backup event has occurred. To see more events, you can use the down arrow to scroll down the history list

History Format

Since the screen has a limited number of characters that can be shown, the system uses a special format to show the different sewer backups events that happened since the installation of the system.

Here is an example to better show how to read the history format:

Event: a sewer backup occurred at 19H15 on the 18th of January 2018. The sewers were blocked for 30 minutes.

Format: YY-MM-DD HH D:HH:MM

Shown on the screen: 18-01-18 19 0:00:30

18 = Year

01 = Month

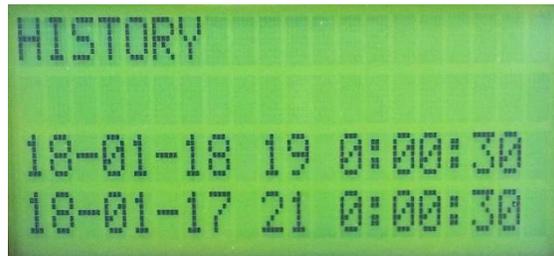
18 = Day

19 = Time of the day rounded up

0: = Duration in days

00: = Duration in hours

30: = Duration in minutes



The history events cannot be erased from the control panel.

Weekly self-test

The Aqua-Protec system is designed to give you peace of mind. This is why the system will perform a partial test each week to ensure that no problem is present in the system.

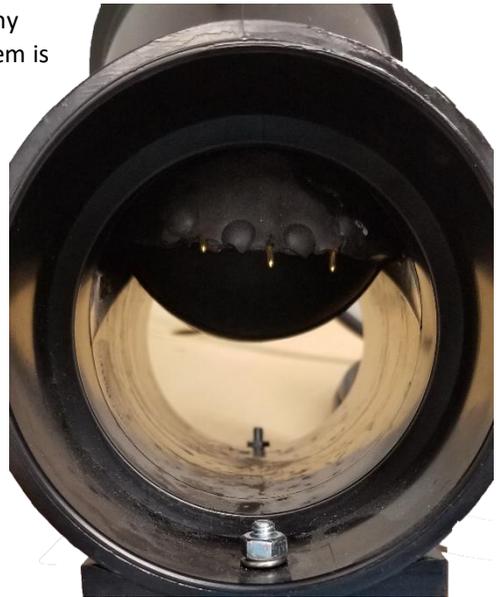
The partial test is configured at the time of the installation by the installer. It is set for a specific day and time of the week.

During the partial test, all the LEDs will go off during the 10-minute test period. The bladder will inflate partially, not blocking the sewer line, at 4 psi. People can still continue to use their appliances normally as they would even if the partial test is not being conducted.

No alarm will be activated at the beginning / end of the test. Only the compressor will make a vibration noise during the first 20 seconds of inflation.

If the partial test fails, it is reconducted one hour after to make sure the problem is consistent. If the problem appears again, the system will start its sporadic audible alarm and show the error code associated with the problem.

You can refer to the chart named “**Error Code Definitions**” on Page 13 of this document to understand the error code and to mention it to your installer.



Work to be done in your sewers?

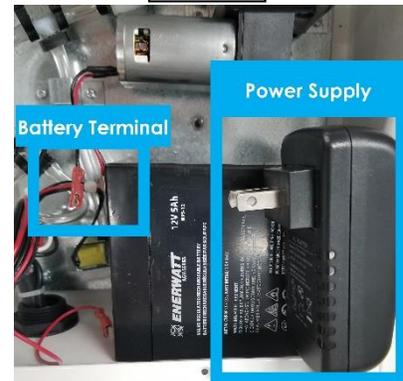
Over time, your sewer line may require inspection, unclogging, repairing or cleaning. The clean-out access will be used to execute the work by your licensed plumber. In this situation, you need to inform the plumber that an Aqua-Protec is installed. Aqua-Protec can easily be removed from the clean-out access to allow the work. If the plumber is not familiar with Aqua-Protec, they can refer to the section below “**Bladder Removal Instructions**”.

Bladder Removal Instructions

Attention: Before beginning bladder removal, make sure the system is not running its weekly auto-test. Prepare a clean surface close to the work area on which to place the removed bladder.

1. Turn off the power
 - a. Unplug the power supply from the power outlet
 - b. Disconnect one terminal of the battery.
2. Loosen the cable gland nut on the clean-out cap.
3. Loosen and remove clean-out cap from the clean-out
4. Keeping the anchor ring attached, carefully pull on the installation rod and the steel extraction cables until the bladder is retracted out of the clean-out. Lubricate with water and soap as required.
5. Place the bladder on a clean surface. During installation, the bladder was covered with a silicone lubricant to ensure easy positioning and sealing. Accumulated residue on the bladder may affect the ease of repositioning of the bladder into the clean-out.
6. Once the sewer maintenance or repair is completed, Aqua-Protec can be reinserted in the clean-out. Repositioned correctly, it will once more protect your basement from sewage backups. See bladder insertion procedures in this manual.

Step 1



Step 2



Step 3



Step 4



Step 4.5



Step 5



Bladder insertion instructions

1. Test the bladder sensors by touching two probes with a metal tool. The yellow light should be on when you touch them. **DO NOT TOUCH THEM MORE THAN 5 SECONDS AS IT WOULD START THE INFLATION**
2. Insert the bladder into the clean-out, taking care to direct probe sensors in same direction as the flow in the sewer.
3. Using the positioning rod, slide the bladder until the anchor ring sit at the bottom of clean-out cap threads.

Note: To ease the way down back into the clean-out, silicone lubricant can be used on the bladder. Do not use any other lubricant type. Bladder sensors must remain clean.

4. Make sure steel wires are going through the anchor ring.
5. Tighten clean-out cap in place. Hand tightening is enough to seal the cap.
6. Tighten cable gland nut to insure water tightness. Hand tightening is enough to seal the cable gland.
7. Repowering the system
 - a. Connect the battery terminal
 - b. Plug the power supply into the electrical outlet.

We recommend running a full test to confirm that the system is functional. If the test is not performed at this time, the system will run the test during the weekly self-check.

Step 2



Step 3



Step 4



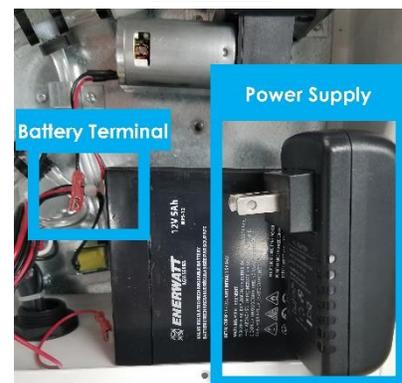
Step 5



Step 6



Step 7



Maintenance

The system has the ability to verify itself each week to ensure you are protected.

However, some maintenance may be necessary on the system depending on the number of sewer backups you blocked each year.

The only part that cannot be verified by the system is the sensors. The sensors show less sensitivity when the system has blocked a lot of sewer backups and that debris has likely stuck to the sensors themselves.

The verification is mandatory at each 10 sewer backups or after 5 years service to ensure that the system will continue to quickly respond to sewer backup events. However, depending on the number of logged sewer backups and the local installation environment, we recommend doing a quick verification each year.

The normal evacuation process of water will not affect the sensors since the bladder form creates a bubble underneath the bladder to make sure the wastewater doesn't touch the sensors.

The maintenance should take around 1h maximum to remove the bladder from the clean-out, clean the sensors, verify the connections, put back the bladder inside the clean-out and perform a partial and full system test. The maintenance should be done by the installer of the system.



Bladder Replacement

Aqua-Protec is a fully automated system and requires little manual intervention. It should protect your building at all times, even in the most extreme situations. In order to ensure its proper operation, the RPSM has a limited recommended lifespan and must be replaced or verified at the earliest of the following:

- **After being deployed for a duration of more than 24 consecutive hours, or**
- **After 10 deployments of duration of more than 1 hour, or**
- **After 5 years of service.**

Battery Replacement

The battery backup has an expected life of 3-4 years. It can keep the system fully functional for more than a week in the event of a power outage. Aqua-Protec notifies you in advance when the battery no longer keeps its charge and a replacement is necessary. The message “**REPLACEMENT REQUIRED**” appears on the display screen on the control panel. To replace the battery, follow this procedure:

1. Open the control panel with a big flat screwdriver. Turn the lock anticlockwise for 90 degrees.
2. Disconnect the red wire from the red terminal of the battery. Do the same with the black wire.
3. Remove the battery from the control panel and place back the new battery with the same specifications inside.
4. Reconnect the red wire to the red terminal of the battery and the black wire to the black terminal.
5. The system should immediately detect the new battery is connected and remove automatically the error code

Technician Menu

This menu is intended to be used only by the certified plumber for periodic maintenance or inspection of Aqua-Protec. It requires a password.

Precaution

To ensure optimum performance of Aqua-Protec, the cable between the control panel and the cleanout must remain free at all times. Do not stack any object on it or against it. Air used to inflate the bladder is circulating in the cable. If the cable is pinched, systems may not operate properly. The weekly auto-test should detect and inform you if there is a problem.

Technical Support

To access to further procedures and information, visit the website at www.nowasupport.com and register to get access to documents and much more related to the Aqua-Protec system.

We recommend first consulting the company that installed your system since they are most familiar with your specific installation.

For direct assistance, contact **1-877-287-7777** to reach the technical support line

Error Codes Definition

Aqua-Protec Error Codes Definition		
ERROR CODES	DESCRIPTION	SHOWN ON SCREEN
1	The measured pressure is higher than the vacuum limit pressure.	RPSM does not deflate. Maintenance Required
6	The bladder did not reach its maximum pressure within the specified time.	Air circuit leakage
7	The bladder inflated for more than 1 min and did not reach its minimum pressure.	Air circuit leakage
9	The pressure of the bladder fell below its minimum before 10 min. The problem is stored in memory and waits for the end of the ALERT MODE.	Air circuit leakage
20	The specified pressure was not reached within the specified time (partial test).	Air circuit leakage
21	The internal pressure of the bladder fell below the limit pressure within the required time (partial test).	Air circuit leakage
58	The bladder has reached its warranty expiry date and needs a mandatory inspection.	RPSM replacement required (Expiry Date)
66	The system has reached its target pressure immediately	The pneumatic system is blocked
67	The system has reached its target pressure too quickly	RPSM may be improperly installed

CSA, NPC, BMEQ, RBQ approvals and Patents

The Aqua-Protec system has been approved by the National Plumbing code (NPC), the Building Materials Evaluation Commission (BMEC) and the Régie du bâtiment du Québec (RBQ) to be installed by a certified plumber on an existing or new clean out on the main line.

However, since cities can make amendments to the plumbing code, you may need to verify with the city if they approved the system or not. Some cities are giving some subsidies for the purchase and installation of the system. Make sure to ask your plumber if you are eligible.

The Aqua-Protec system is a patented product unique in the world. Since no other devices such as the Aqua-Protec system exists at the moment, we needed to create a new standard for the system to comply. One important point of the standard is that once the bladder is fully inflated, not a single drop of water shall pass throughout the bladder.

Since the Aqua-Protec system is acting as a main water line sewer backup protection device, the same rules that apply to mainline backwater valve apply to the Aqua-Protec system.