



the beaver

Wetness Sensor with Automatic Shutoff Valve

Model # AT601 - Installation and Operation Manual - V3



The installing Plumber and the User **MUST** read this manual before use, to ensure they understand the installation, operation and service requirements of the System.



This manual must be left in the plastic bag provided and attached to the system.

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FEATURES

- Plug in Solenoid Cable allows for easier cable management, future servicing and cable extension if required. (*Standard cable length is 2 metres, extra extensions are available*).
- Alarm Output capability (Pulsed or Latched) to trigger external devices such as Security Alarms or Building Management Systems if the Beaver shuts off the water (*For this function you need to order the optional interface Cable Part # CBL601BMS. Separate instructions come with cable*).
- A battery powered system with a very long battery life when fitted with high quality ALKALINE or LITHIUM AA Batteries. It is estimated that they will last up to 5 years on Alkaline Batteries and up to 8 years on Lithium ones.

1. Introduction

The Beaver is a Watermark certified commercial grade Wetness Sensing system. It uses a wetness sensor linked to a stainless steel (316 Grade) Shutoff Valve, to automatically cut the incoming cold water supply to an appliance, in the event of the leaked water making contact with the wetness sensor. **The shutoff valve is available in 15mm, 20mm or 25mm sizes.**

The Control Box has Sensor Contacts built into its base plate, which will detect the presence of water on the floor or in the leak catch tray, and signal the shutoff valve to instantly close the incoming water supply. It is suitable for monitoring Hot Water Systems, Water Dispensers, Icemakers, Washing Machines, Dish Washers etc. The Beaver must be installed by a licensed plumber in accordance with local government and plumbing regulations.



NOTE: The AT601 Beaver is powered by two AA batteries, which are supplied in the box. When it comes time to replace the batteries, YOU MUST ONLY USE ALKALINE batteries - DO NOT use Heavy Duty or Zinc batteries, as they do not have enough current to power the system and it WILL NOT WORK reliably. Always choose a recognised quality battery brand such as Energizer or similar...

Shutoff Valve

Control Box & Cable

Top View of Control Box



(Available in 15mm, 20mm and 25mm)

Valve Socket
External Power Socket (Concealed under Cover Label)
LED
Push Button
Alarm Output Socket

2. Installation Preparation and Warnings - READ CAREFULLY

Follow all the Warnings and Procedures in this manual. After installation is complete, put this Manual in the plastic bag provided and attach it to the pipe next to the Shutoff Valve for future reference. For technical support, contact info@thebeaver.com.au

WARNING



Freezing Conditions - Do not fit the Beaver Shutoff Valve in an area where it is likely to be exposed to freezing conditions. It will not function below freezing. If conditions are likely to drop to zero, it must be insulated from the cold. It will be damaged if it freezes.

WARNING



Pressure Rating - Do a pressure test on the main incoming supply to the property. Check that the pressure does not exceed the pressure rating of the Beaver Shutoff Valve. If the pressure is within 80% of the maximum rated pressure of the valve, which is 1034kpa, then a Pressure Reduction Valve must be fitted.

WARNING



Hard Water - In hard water areas where calcification is a problem with plumbing fixtures, this could inhibit the functionality of the Beaver. Therefore, the user is advised to increase scheduled servicing and system check procedures to compensate for this.

WARNING



Fire Suppression Lines - Do not install the system on any Fire Suppression Supply lines. If a Fire Suppression system is present, make **certain** that the Beaver is installed downstream of the supply lines to that system, so that it has no influence on the water supply to the Fire Suppression system.

WARNING



Shutoff Valve location - Always install the Shutoff Valve in a location easily accessible for installation and maintenance. There must be a manual **stop cock** upstream of its installation point, so the system can be isolated from the incoming supply for maintenance. **Do not install the valve in an upside down position.**

3. Installation Instructions

- The Shutoff Valve must be fitted on the incoming cold water supply line to the appliance/area/plumbing to be monitored.
- The valve is directional, install with the direction of the flow matching the direction of the arrow on the side of the valve.
- Mount the valve horizontally for ease of service or if necessary, vertically on the incoming line, BUT NOT UPSIDE DOWN.
- Mount the valve where it is most easily accessible for operation and future servicing.

IMPORTANT: DO NOT install on any water line that may exceed 50°C in temperature.

The example below illustrates the suggested installation for protecting a Water Heater. The Control Box must stand vertically in the area to be monitored, and in this example, it sits in the Leak Drip Tray of the Water Heater. The metal Sensor Contacts in the Control Box base plate **MUST NOT** come into contact with ANY metal surfaces or objects, as if they do, they will cause the system to constantly attempt to shut the valve.

The Control Box is supplied with two optional brackets for a variety of mounting options :-

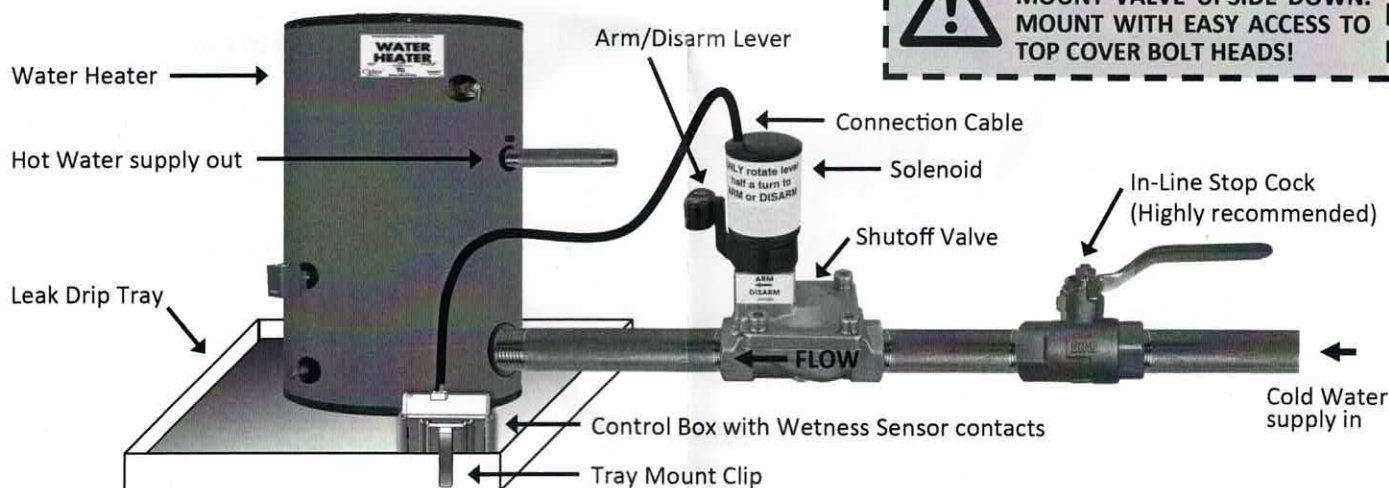
1. A **Clip** style bracket to allow the Control Box to be clipped to the Leak Tray sidewall if a leak tray is present **OR**
2. A **Hanging** style bracket to allow the Box to be fixed to screws mounted into a skirting board or vertical wall surface.

If either bracket is used, make sure the Sensor Contacts are in a position that will allow them to get wet if a leak occurs.

 **Note the direction of the bracket before you slide it onto the Control Box, as once installed, it is not easy to remove.**

The connection cable between the Valve and Control Box is 2m long. 6m extensions are available. Leave enough slack for the Control Box to be sited with easy access for servicing. Coil up any excess cable neatly and secure with the twist tie or a cable tie. Make sure the Control Box is located where it is secure and able to make contact with surface wetness, should it occur.

WATER HEATER INSTALLATION EXAMPLE



BATTERY INSTALLATION - Take the Control Box and squeeze the two lid latches on the base plate/lid together, then slide out the circuit board containing the battery holder. Paying attention to the polarity, insert the AA batteries into their holder and carefully slide the circuit board back into place, making SURE it is located WITHIN the grooves on the inside of the Lid. *Make sure the base plate/lid latches engage firmly on both sides and they both audibly click.*

4. Operation and Testing Instructions

A. What to do if the water turns off

If the Sensor Contacts on the base of the Control Box get wet, the Shutoff Valve will close and shut off the water supply and the beeper will now sound intermittently.

- To turn off the beeper, press the button on top of the Control Box ONCE.
- To turn the water back on, press and HOLD the button for >3 Seconds.

NOTE: Once triggered, the Valve will remain shut until it is manually reset.

B. How to test if the valve is functioning correctly

The valve must be tested annually, using the following two methods :-

1. Let water run through the appliance. Hold the button down on the Control Box for about 3 seconds, the LED will glow **green** (IF the battery is OK), then **red**, and the water will shut off. Press and hold it for about 3 seconds again, and the water will turn back on.
2. Let water run through the appliance. Lift up the Control Box, then lick/wet your finger and put it across the two Sensor Contacts on the underside of the base. As soon as the contacts are bridged by the wetness on your finger, the valve will shut and the water flow will stop. Press the button on the Control Box once to stop the beeper, then press and hold the button for 3 seconds and the LED will glow **green** and the valve will open and the water will start to flow again.

If these steps are in order, then the Beaver is functioning correctly.

IMPORTANT: If the Sensor Contacts remain wet after testing, you will NOT be able to get the water to stay on! Dry the contacts to resolve this issue.

C. How to test if the batteries need replacing

The Beaver is powered by long life AA Alkaline batteries. Check them by pressing the button on the top of the Control Box once and the LED will light up in one of the following colours to denote the battery condition as follows:-

- **Green** - Excellent
- **Red + Green** - Low or about 50% (Orange Colour)
- **Red (solid)** - Weak, replace as soon as possible
- **Red (flashing)** - Bad, replace immediately

To replace the batteries, pinch the two latches on the base plate and carefully slide out the circuit board containing the battery holder. Remove the batteries (use a small screwdriver if necessary). Replace them with quality ALKALINE or LITHIUM types and then slide the circuit board back into the Control Box, ensuring the two lid latches click securely into place.



WARNING: DO NOT USE STANDARD HEAVY DUTY (Zinc) BATTERIES - THEY WILL NOT WORK. Always retest the system function after replacing the batteries.

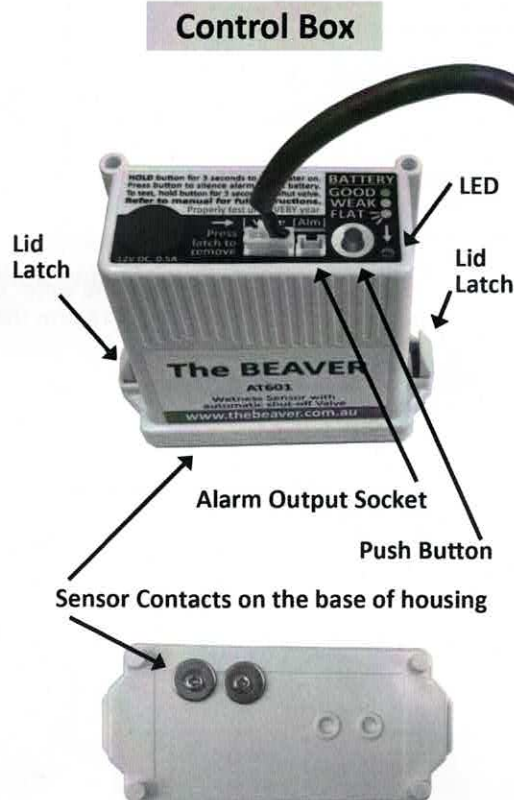
D. Low battery Warning Alarm

(NOTE: When the batteries go flat it will shut off the water.)

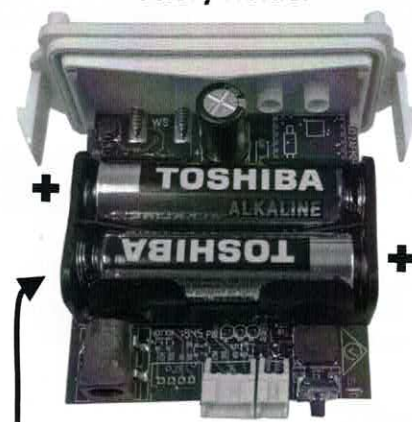
If the batteries get low, the system will sound the warning beeper until they are replaced. Press the button once to temporarily silence the beeper. If the batteries go flat it will shut off the water and beep every 60 seconds. If you do not have any replacements, remove the old batteries and follow the Emergency Manual Override Procedure in Section 6. Replace your batteries as soon as possible, as there is NO PROTECTION in override mode. The batteries must be checked every six months.

E. Troubleshooting Guide

If the system fails to turn off the water when tested, check the battery capacity as advised in Point C above. Replace the batteries if the LED displays red. If the battery display is green and the valve will not shut the water when tested as advised in Point B above, check the system is not in Override Mode as described in Section 6 overleaf.



Circuit Board showing Battery Holder



Note the battery polarities when installing and check periodically for battery level and leakage.

5. Service Requirements

The Beaver must be checked annually and is supplied with a Service Record tag for this purpose. If not already in place, the tag **MUST BE** attached along with THIS MANUAL in it's bag, to the cable between the Valve and the Control Box using the supplied Twist tie. The Service Record must be completed each year by a plumber to maintain the functionality of the system.

In co-ordination with the user, the plumber must explain to the user :-

- The location of the system and how it works
- The location of the Installation and User Manual for their reference
- The importance of setting up an annual service visit to check the system and complete the Service Record tag

6. Emergency Manual Override Procedure

If the valve shuts off the water because the battery has gone flat and you do not have a replacement, you can override the entire system by rotating the black lever together with the solenoid on the Valve **half a turn anti clockwise**, so it is in line with the green "**Disarmed**" label. The system will now be disarmed or deactivated. To re-arm the system, rotate the lever clockwise half a turn back to the armed position (until it just stiffens), so it is in line with the red "**Armed**" label.

If the valve had been triggered and the water is off, this action will turn the water back on. If you ever have to do this, once you have replaced the battery, you must re-arm the system by rotating the black lever half a turn clockwise to the armed position.



Always RETEST the system as described in Section 4, to make sure it is working correctly.



TO OVERRIDE or DISARM THE SYSTEM

Use the Black lever to turn the solenoid half a turn anticlockwise until it is in line with the green **DISARMED** label.

TO RE-ARM THE SYSTEM

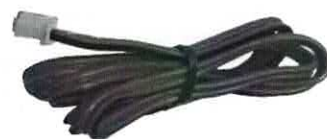
Use lever to turn the solenoid half a turn clockwise until it **STIFFENS** and is approximately in line with the red **ARMED** label.

NOTE: Always retest the system after re-arming it as explained in Section 4



OPTIONAL EXTRAS

Alarm Output Interface Cable
Part # CBL601BMS



Extension or Add On
Wetness Sensing Probe

Part # WSB-02



7. Certifications, Specifications and Warranty



Cert 23037 S030
Cert 23251 S476



SANS
1808-35:2010

In Australia the AT601 is
also certified to meet
ATS5200.476 as specified.

| Model | Valve Body Material | Valve Size | Application | Flow Rate @ 75 PSI | Operating Pressure | Maximum Pressure | Operating Temperature | Power Supply |
|-------|---------------------|---------------------|-----------------|--------------------|------------------------------|---------------------|--------------------------------|---------------------------|
| AT601 | Stainless Steel 316 | 1/2" 15mm or bigger | Cold Water ONLY | 126 L/min for 15mm | 7 - 150 PSI 49 - 1034 KPa | 150 PSI 1034 KPa | 0 °C - 50 °C 33 °F - 122 °F | 2 x AA Alkaline Batteries |

This product is warranted to be free from defects in materials and workmanship for a period of one year from the date of installation, provided that the product is used in accordance with the installation, maintenance and testing requirements described in this Installation and Owners Manual. Failure due to: incorrect installation; misuse; water ingress from negligence; uncompleted prescribed service schedules; discharged, leaking and corroding batteries, are not covered by the warranty. The warranty becomes null and void if the unit has been tampered with, repaired, or damaged by any unauthorized person. An official receipt as proof of purchase will be required for all applications under this warranty policy. The warranty is limited to the replacement of the faulty parts or components, and does not cover the cost of removal and/or re-installation of the replacement components or device. We accept no liability for any consequential loss resulting from the failure of the product itself or its failure to activate the shutoff valve. Our liability is specifically limited to the repair or replacement of the product. If the user requires specific liability coverage for protection against water damage and its consequential cost, then they must take out insurance specifically for that purpose. If the user is not in agreement with these terms they have fourteen days from the date of purchase to return the unit for a full refund. This warranty is in addition to the Purchaser's rights under the Australian Consumer law.

The Products come with guarantees that cannot be excluded under the Australian Consumer Law. The Purchaser is entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. The Purchaser is also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

For our specific and detailed warranty and indemnity terms and conditions refer to our website www.thebeaver.com.au