



102-477

Installation & Operating Instructions

FloodBreaker™

SUPERSEDES: November 26, 2013

EFFECTIVE: December 18, 2013

Plant ID No. 001-4063



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Safety Requirements

Consult local plumbing, building and electrical codes in your area before installing the FloodBreaker™.



The FloodBreaker is for indoor use only and should only be installed by qualified professionals. These instructions are not intended to contradict any local building codes. These instructions should be considered in addition to local codes. Consult your local authority regarding any instructions contradictory to code requirements.



Warning: The FloodBreaker must not be installed between the water source and a fire sprinkler system. Failure to follow these instructions could result in serious personal injury, death and/or property damage.



Warning: Boilers must be equipped with both a boiler relief valve and a low water cut-off before installing the FloodBreaker. Failure to follow these instructions could result in serious personal injury, death and/or property damage.



Warning: Water heaters must be equipped with a T & P relief valve. Failure to follow these instructions could result in serious personal injury, death and/or property damage.



Caution: FloodBreaker will not provide any protection against water usage or leaks that take place prior to its location in the piping system.

1. Application

The Taco FloodBreaker™ is a whole home adjustable leak protection system that monitors several aspects of water usage. It shuts off the water supply once any of the monitored settings are reached.

Note: The FloodBreaker will not be suitable for installations where the flow rate will exceed 15.5 GPM for 30 minutes or longer.

2. Factory Default Settings

DESCRIPTION	MENU DISPLAY	DEFAULT SETTINGS
Standard Leak Protection	LE	4
Vacation Leak Protection	UL	10
Valve Position	Ab	P1
48 Hour Monitor	4#	–
Time-Based (Volume)	t1	–
Time-Based (Flow Rate)	t2	1
Volume-Based Secondary Check	E#	–
Output Contact	O#	1
Internal Alarm	bu	1
Floor Sensor (In1)	11	1
External Contact (In2)	12	–
Monitoring Option	H#	c

3. Inserting/Changing Batteries

Insert the batteries prior to using the FloodBreaker. Open the battery door and remove the battery block.

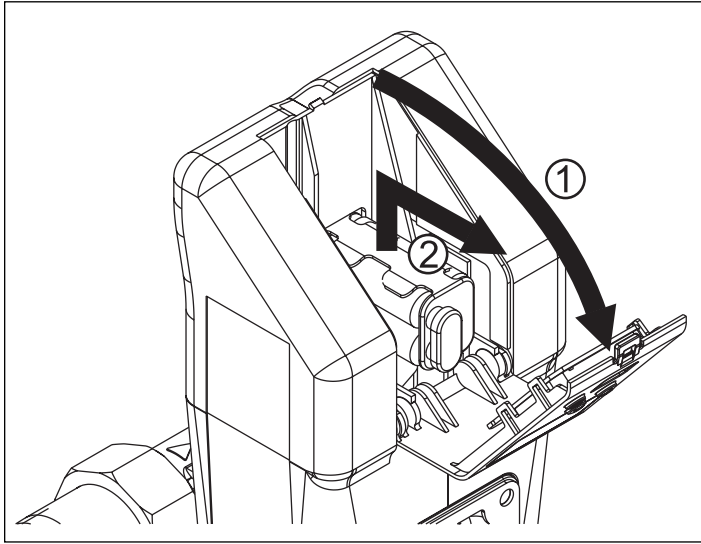


Figure 1

Insert new batteries or change used ones. Put the battery block back into place in the battery compartment.

Make sure that the battery block is correctly positioned in the compartment against the internal back wall or you may experience difficulty closing the battery door. See Figure 1.

Close the battery door.

The FloodBreaker is supplied with an optional power cord so that you can also connect the FloodBreaker to an external power source.

Note: Not all operations function on battery power alone, some will require the use of the external power source.



Warning: The batteries must be inserted even when using the power cord. Replace the batteries annually! Never mix old and new batteries. Always install 4 new AA alkaline batteries!

4. General Operation

The control consists of a two digit display and three push buttons (mode, up and a down button).

Use the up (▲) or down (▼) button to adjust the values.

Use the (●) to confirm and save the values or to scroll through the menu items.

Symbol	Key	Function
(●)	Mode	Scroll / Save Settings
(▼)	Down	To decrease values
(▲)	Up	To increase values

4.1 Unlocking the keyboard

When the FloodBreaker is exclusively battery operated, press any button to activate the display. It will sleep automatically after approximately 30 seconds of no use.

The menu is locked automatically.

The menu must be unlocked to scroll through menus or change any values.

In order to unlock the menu, simultaneously press the (▲) and (▼) buttons for about 3 seconds. There will be a short beep and the display starts flashing to signal that the menu is unlocked. (See Figure 3)

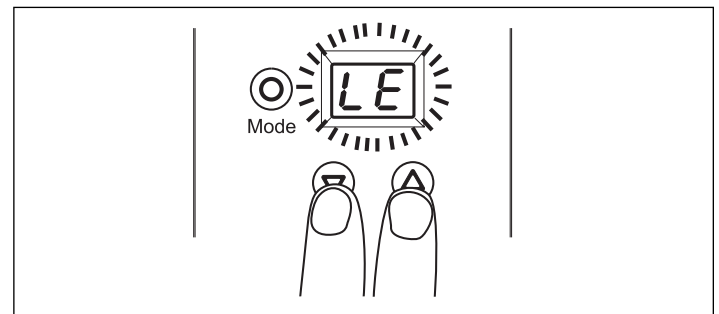


Figure 3

Scroll through the menu by pressing the Mode (●) button. Change the values by pushing the up (▲) or down (▼) buttons. Save changes by pressing the mode (●) button.

Once cycled through all three primary menus the keyboard returns to the locked position. If no button is pushed for 30 seconds the display goes blank and returns to the locked position.

Note: If the FloodBreaker is attached to an external power source, the display always remains active.

5. User Menu

5.1 Standard leak protection

In the standard leak protection mode the system monitors the water volume used without any interruption, the length of time water is used without interruption as well as the flow rate.

Should one of the following criteria be exceeded, the device suspects a leak, closes the valve and displays a shut-off code.

1. Volume-based leak – Message A3 is displayed if the water volume used exceeds the set limit without interruption.
2. Flow rate – Message A4 is displayed if 15.5 GPM is exceeded for the set period of time.
3. Time-based leak – Message A9 is displayed when constant flow is detected over a time limit based on the following settings. To override the default time see section 6.3.

LE Standard Protection Setting	Default Time
Leak setting 1 - 4	2 hours
Leak setting 5 - 7	3 hours
Leak setting 8 - 11	4 hours
Leak setting 12 - 15	5 hours

Note: The valve will close if constant flow is detected once the time limit is reached. This happens even if the water volume has not reached the leak set point.

5.2 Setting the standard leak protection

If you are not using an external power source, press any button to activate the display. LE appears in the display window. If vacation leak mode is activated UL appears in the display instead.

Note: The FloodBreaker is shipped with the Vacation Leak Protection (UL) setting active. Vacation Leak Protection will override the Standard Leak Protection (LE) and must be deactivated (See section 5.5) for the Standard Leak Protection to be active.

1. Unlock the menu per previous instructions in section 4.1 (Figure 3); either LE or UL will be flashing on the display screen.
2. Press the  button once and LE will be displayed (Figure 4).

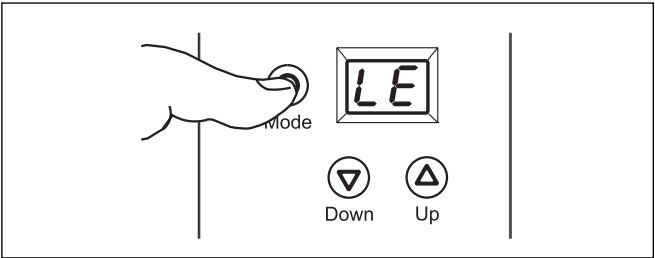


Figure 4

3. Press the  button again to display the current leak setting (Figure 5).

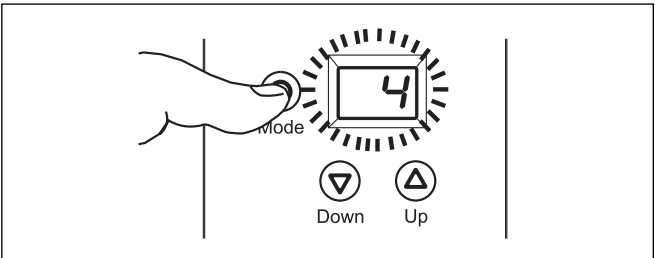


Figure 5

4. Using the  and  buttons adjust the FloodBreaker to the desired setting. See Table 1 for code key.

Table 1	
LE Standard Protection Setting	Approximate Gallons
--	Deactivated
1	25
2	55
3	80
4	105
5	130
6	160
7	185
8	210
9	240
10	265
11	290
12	315
13	345
14	370
15	395

Once the LE number is selected press the  button to enter and save the changes.

Note: Anytime a program change is made press the  button after the change to enter and save the change.

5.3 Temporarily deactivating the standard leak protection

To temporarily deactivate the standard leakage protection, follow the instructions in 5.2 and select the -- leak setting shown in Figure 6. After saving and returning to the home screen, "0" will be displayed during the deactivation period.

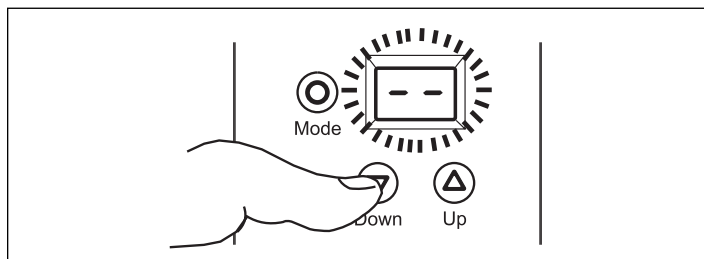


Figure 6

Note: The standard leak protection mode is automatically reactivated after 8 hours.

5.4 Vacation leak protection

During periods when the house may be unoccupied a tighter leak protection may be desired. This can be accomplished using the vacation leak mode and does not require changing the normal leak protection setting. When activated it overrides the standard leak protection.

The vacation leak protection is adjustable from 3-26 gallons of uninterrupted flow. If the vacation leak setting is exceeded a leak is suspected, the FloodBreaker closes thus shutting off the water and the Message A5 is displayed.

5.5 Setting the vacation leak protection

1. Unlock the Keyboard. Press the  button until reaching the UL menu (Figure 7).

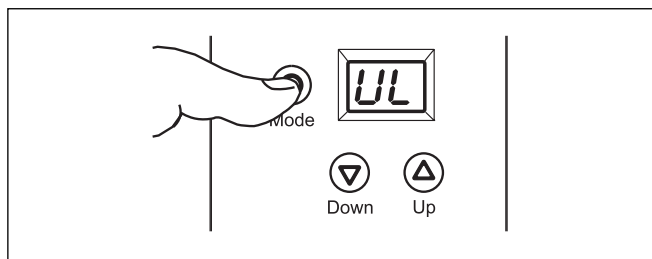


Figure 7

2. Press the  button once more to reach the adjusting screen. Set the desired value by using the  and  buttons (Figure 8). See Table 2 for the code Key.

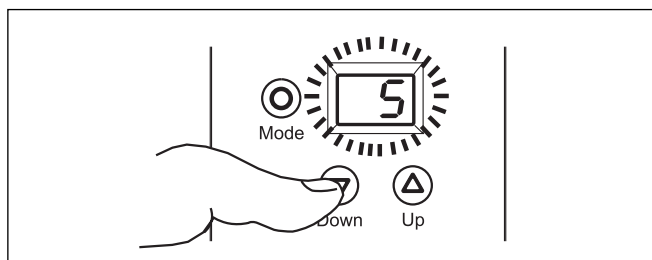


Figure 8

3. Press the  button again to save.

Table 2	
(UL) Vacation Leak Settings	Approximate Gallons
--	Deactivated
1	3
2	5
3	8
4	11
5	13
6	16
7	18
8	21
9	24
10	26

Note: When vacation leak protection mode is activated, it overrides any standard leak protection.

5.6 Deactivating vacation leak protection

In order to turn off the vacation leak mode follow instructions in 5.5 and set vacation leak to -- (Figure 9).

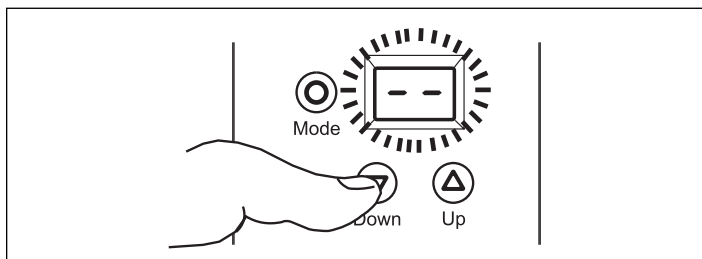


Figure 9

5.7 Re-opening after a leak shut-off

When the FloodBreaker has detected a leak and isolated the system it can be re-opened by pressing the Mode button (Figure 10).

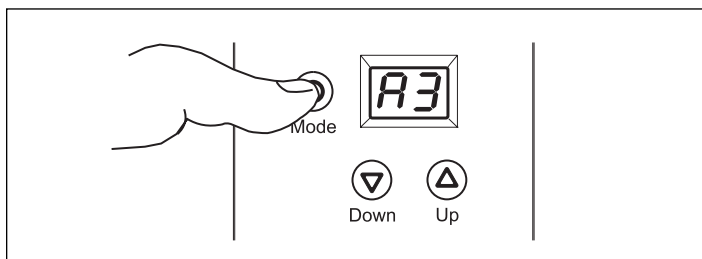


Figure 10

5.8 Opening and closing the FloodBreaker

1. Unlock the keyboard. Press the Mode button until reaching the manual menu identified as Ab (Figure 11).

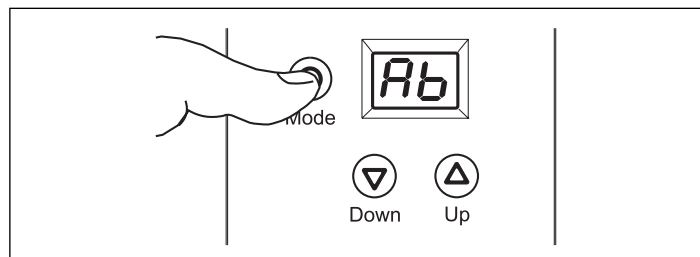


Figure 11

2. Press the Mode button again to view the current position.
3. Use the Up or Down button to change the FloodBreaker's current position. P1 is the open position and P2 is the closed position (Figure 12).

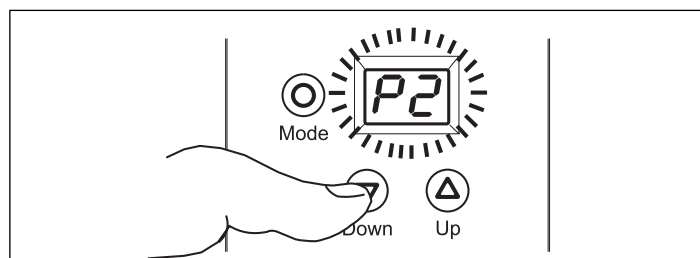


Figure 12

4. Once the desired position is displayed press the Mode button to activate and save the setting.

6. Advanced Menu Settings

In order to view the advanced menu, press and hold the Mode button. While holding the mode button, press the Up button three times and then release both buttons. You may now scroll through the advanced menu.

If you wish to make adjustments to any settings in the advanced menu, it must be unlocked per the user menu instructions in section 4.1.

Note: Changes should only be made to Advanced Menu Setting after reading and understanding these functions.

6.1 48 hour leak monitor

The 48 hour monitor is an additional method to check for leaks. This function can be used when you may be away from home for longer than several hours and have not activated the vacation leak protection. When this monitor is activated and no water is drawn off for 48 hours, the FloodBreaker closes to isolate the system for 3 minutes.

After three minutes the device opens again and verifies whether there is a flow of water. If it detects a flow of 8½ ounces, a leak is suspected and the device will close. Message A8 is displayed.

The 48 hour leak monitor is factory shipped in the off mode.

6.2 Activating and deactivating the 48 hour leak monitor

Enter and unlock the Advance Menu Settings. 4- is shown and the (-) will be blinking, indicating that the setting can be changed and the monitor is in the deactivated position (Figure 13).

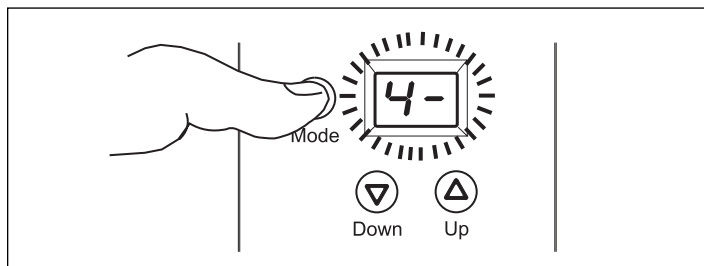
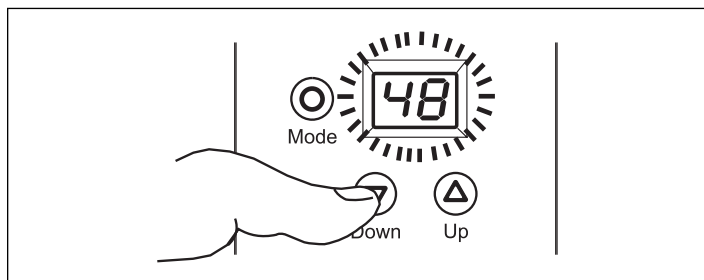


Figure 13

Set the monitor to the active position by pressing the  or  button so the number (8) is displayed instead of the -. To save the settings press the  button.



6.3 Time-based leak protection (Time)

The time-based protection is factory set to the off position. When the time-based leak protection is activated, the default time setting used in conjunction with the standard leak setting is replaced by this new setting. (See section 5.1 for default time settings).

Example: With a Standard Leak Protection setting of 1-4 the default time would be 2 hours. If the time-based leak protection is activated and set to 8 hours, the new time setting for any Standard Leak Protection is 8 hours. This would mean that the FloodBreaker would not suspect a leak until either the set volume of water is reached or a flow of water is detected for 8 continuous hours.

Press the  button until the display shows t1 (Figure 14).

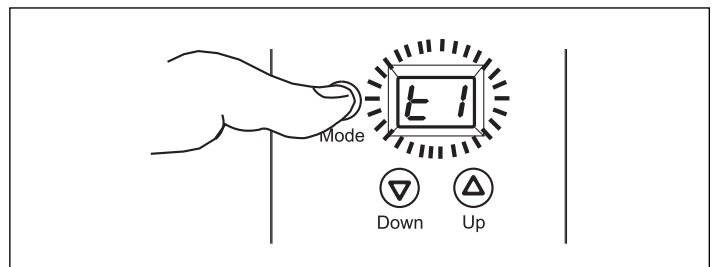


Figure 14

Press the  button again and use the  or  buttons to adjust the number of hours that continuous flow is acceptable before the unit closes. Save any changes by pressing the  button.

6.4 Time-based leak protection (High Flow Rate)

The FloodBreaker will not be suitable for installations that will exceed 15.5 GPM for 30 minutes or longer.

The factory setting is 1 minute. If the flow rate exceeds 15.5 GPM for 1 minute a leak is suspected, the valve will close and message A4 is displayed.

The maximum flow rate is not adjustable. The time limit can be adjusted between 1 to 30 minutes. **It cannot be turned off.**

Press the  button until the time-based flow rate menu is displayed as t2 (Figure 15).

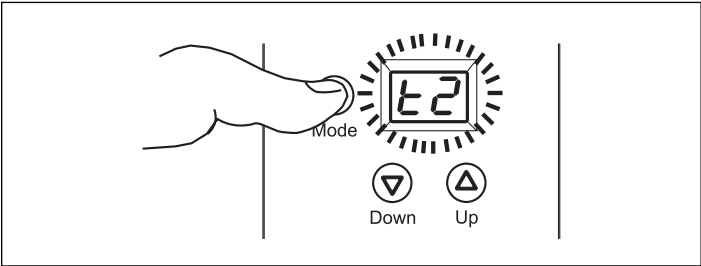


Figure 15

Press the  button again and use the  or  buttons to set how many minutes the FloodBreaker waits before shutting off the water supply when the flow exceeds 15.5 GPM (Figure 16).

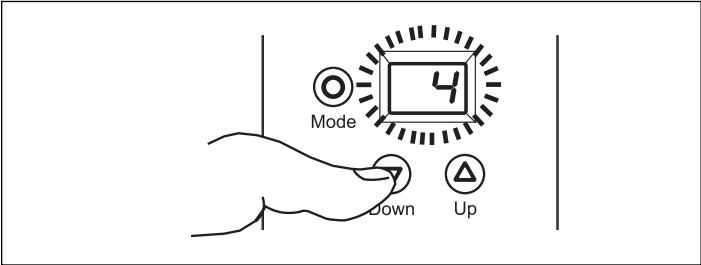


Figure 16

Save the change by pressing the  button again.

6.5 Volume-based leak secondary check

This feature allows the FloodBreaker to double check for a leak when a volume-based leak is detected. The factory setting is deactivated or off (E-).

When the recheck feature is activated (E1) and the FloodBreaker detects a leak, it shuts off the water. It will re-open after 30 seconds to see if water is actually being drawn off. If water flow is detected the valve will close and not open again until it is reset. If no water flow is detected the valve will remain open and allow water usage up to the set points.

Press the up  or down  button to activate (E1) or deactivate (E-) (Figure 17).

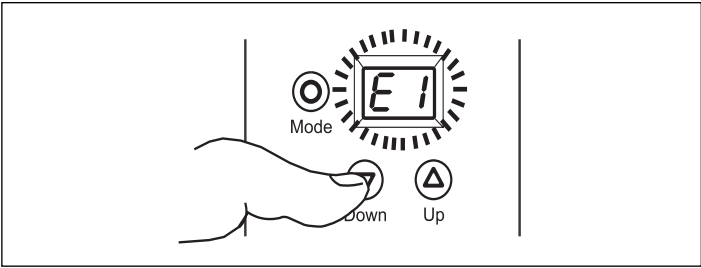


Figure 17

Press the  button to save the change.

6.6 Output contact

This is a dry contact with a 24Volt/2amp maximum switching capability.

The primary use for this contact would be an external alarm display or signal. The factory setting is o1.

Setting	Meaning	Symbol
	Contact is deactivated	
	Closing contact	
	Opening contact	
	Momentary	

Figure 18

Press the  button until the current setting is shown. Use the  or  button to set the contact to the required function (Figure 18). Save any changes by pressing the  button again.

Note: The external power supply must be used for the output contact to function. It will not function on battery power alone.

6.7 Internal alarm

The FloodBreaker has an audible alarm that will sound when a leak is detected and the valve closes.

Press the  until bu is shown (Figure 19).

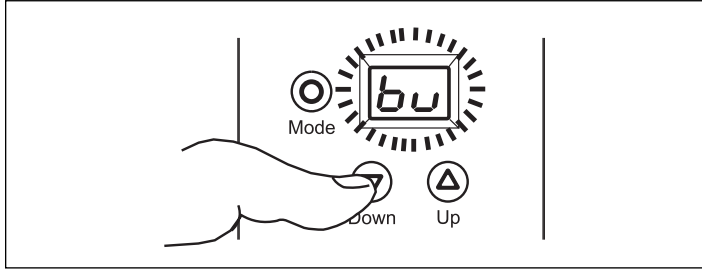


Figure 19

Press the  button again to make adjustments. Use the up  or down  button to activate (1) or deactivate (-) (Figure 20). Press the  button to save the change.

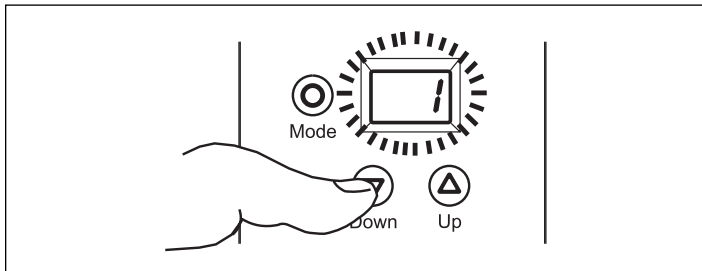


Figure 20

Note: The external power supply must be used for the internal alarm to function. It will not function on battery power alone.

6.8 In1 – Floor sensor

Press the  until 11 is shown (Figure 21).

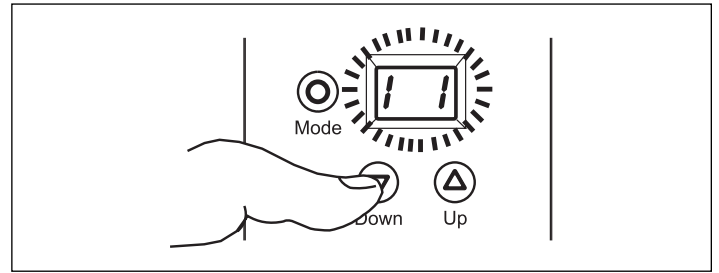


Figure 21

Press the  button again to make adjustments. Use the up  or down  button to activate (1) or deactivate (-) (Figure 22).

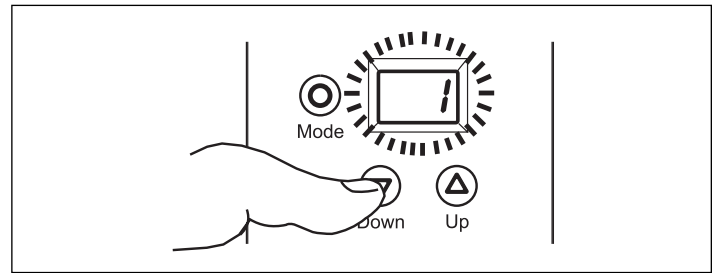


Figure 22

Note: When using the floor sensor, make sure it is fully inserted into the socket or it will not function properly.

When the sensor detects a leak and closes the valve, A6 is displayed. It will take approximately 1 minute for the floor sensor to register a leak.

6.9 In2 – Input contact

The In2 contact offers multiple input possibilities such as instant floor sensors, temperature probes, timers, radio-controlled floor sensors, switch buttons, etc. None of these items are provided by Taco but are standalone contact devices. The contact is factory set to deactivate (--).

Press the  until 12 is shown.

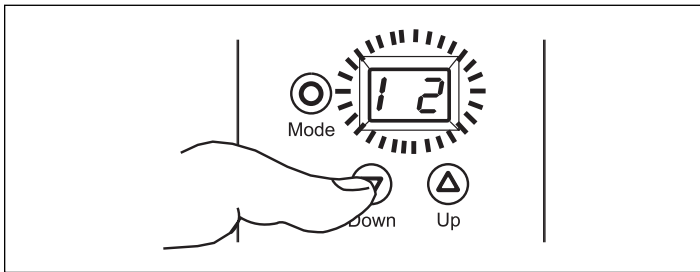


Figure 23

Press the  button again to change the setting. Use the up  or down  buttons to change the type of contact (Figure 23).

The contact has 7 possible Settings (Figure 24).

Setting	Meaning	Detect	Reset
--	Contact is deactivated		
1	Impulse		 key
2	Opening contact		 key
3	Closing contact		 key
4	Impulse		
5	Opening contact		
6	Closing contact		

Figure 24

Settings 1-3 actuate the valve with an input signal as shown. A7 is displayed when activated. Reset the FloodBreaker by pressing the mode button.

Settings 4-6 actuate the valve with the input signal shown. 12 is displayed when activated. The FloodBreaker can either be reset with a second as signal shown or the mode button can be pressed.

Note: The external power supply must be used for the In2 contact to function. It will not function on battery power alone.

6.10 Full or partial monitoring

The FloodBreaker can be set to either full (Hc) or partial (Hd) monitoring. The factory setting is (Hc). (Hc) would be the setting for normal usage of the FloodBreaker. (Hd) might be used for a period of time where an exceptionally high usage of water is taking place, for example adding water to a pool, and you prefer not to change the standard leak setting. Remember to reset the FloodBreaker back to (Hc) once your task is completed.

Caution: When set to partial monitoring (Hd), only the floor sensor is functional. All other monitoring functions are deactivated!

7. System Information Menu

To enter this menu, press and hold the  button and then press the  once and release the mode button.

Note: This is a view only menu and no adjustments can be made.

Press the mode button repeatedly to scroll through this menu.

7.1 Software version

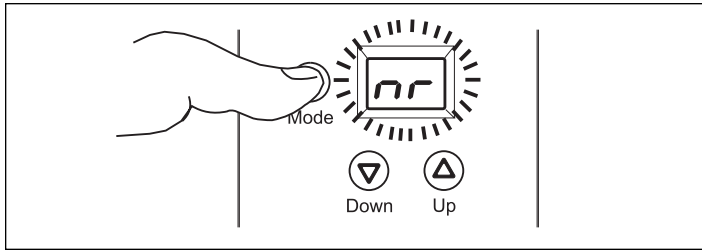


Figure 25

Press the mode button to display the software version (Figure 25).

7.2 Battery power

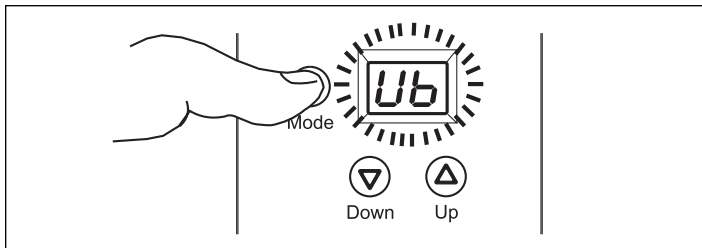


Figure 26

Press the mode button to display the battery voltage remaining (Figure 26).

7.3 Alarm memory

The FloodBreaker can save up to 8 alarm messages. Scroll through the saved messages by repeatedly pressing the mode button. If no messages have been saved, FF will be displayed.

8. Using the Manual Key

The manual key is provided in the event that the FloodBreaker has closed and no power is available to open the valve.

Caution: Before beginning, disconnect the batteries and unplug the external power source if used.

Remove the two cover halves (Figure 27).

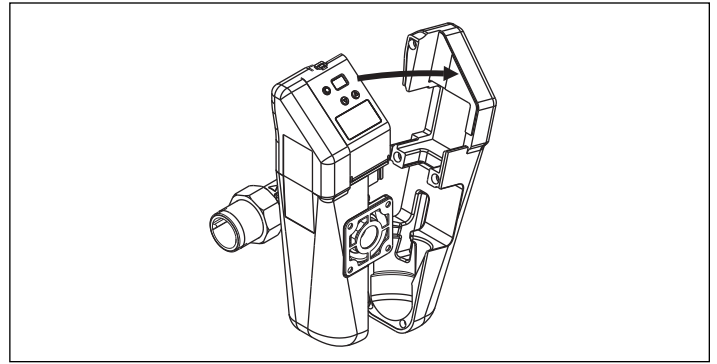


Figure 27

The key is located on the inner side of the left cover (Figure 28).

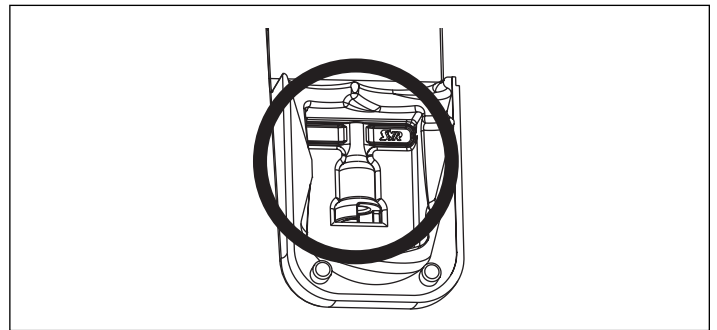


Figure 28

Remove the locking clamp from the control head so that it can be lifted off. Lift off the control (Figure 29).

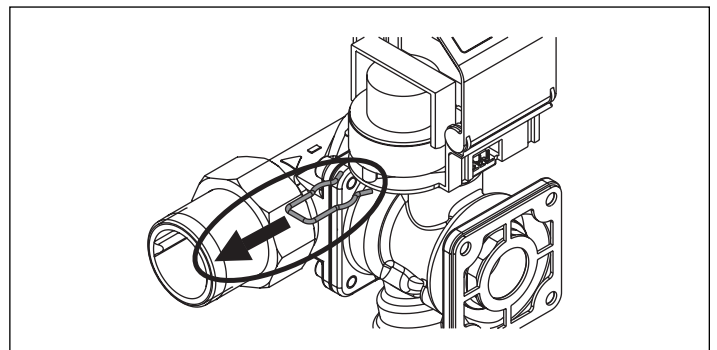


Figure 29

Insert the key by aligning the key slot with the shaft and turn it in the direction shown by the arrows to open (Figure 30). Water flow should be back to normal.

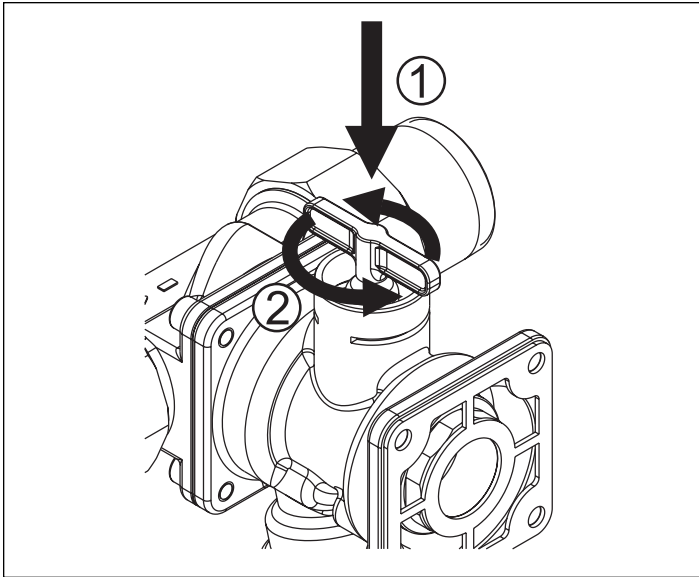


Figure 30

Remove the key from the valve body and follow instructions in section 8.1 to install the control unit back onto the valve body.

8.1 Installing the control unit back onto the valve body

Since the valve position has been changed manually, the control unit position and the valve body position no longer match. This mismatch needs to be corrected before putting the control back onto the body.

Caution: Do not use the control unit to manually turn the valve body.

Once power has been restored the control unit needs to be adjusted to match the valves current position.

Unlock the keyboard.

Press the mode button until reaching controls current position status which should be a “P2” with 2 flashing (Figure 31).

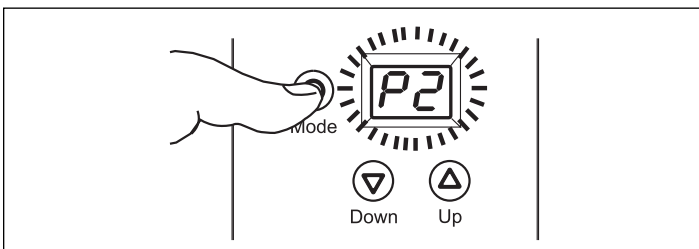


Figure 31

Press the down button to change to “P1” and then press the mode button to save. Once the control unit has rotated to the open position and stopped it can be installed on the valve body.

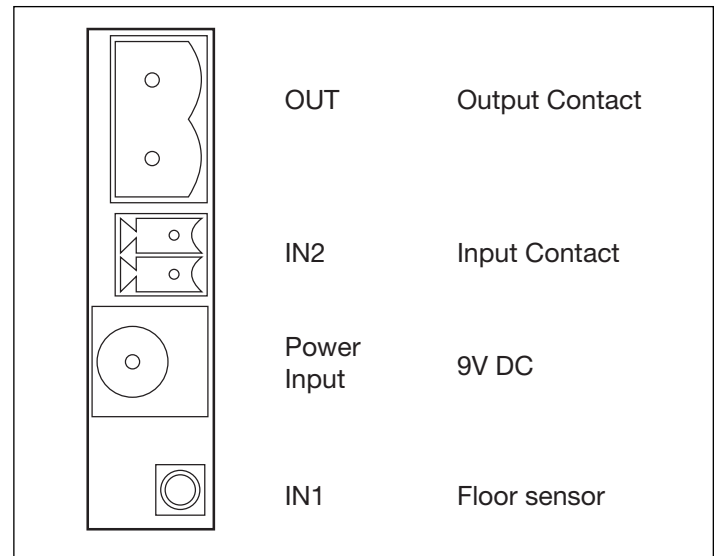
Align the valve stem and locating pin with the mating stem slot and locating notch on the control unit. Slide the control unit onto the valve stem. You may need to gently wiggle the control unit until it is fully seated. Place the locking clamp back into the clamp slots once the control unit is fully seated.

9. Specifications

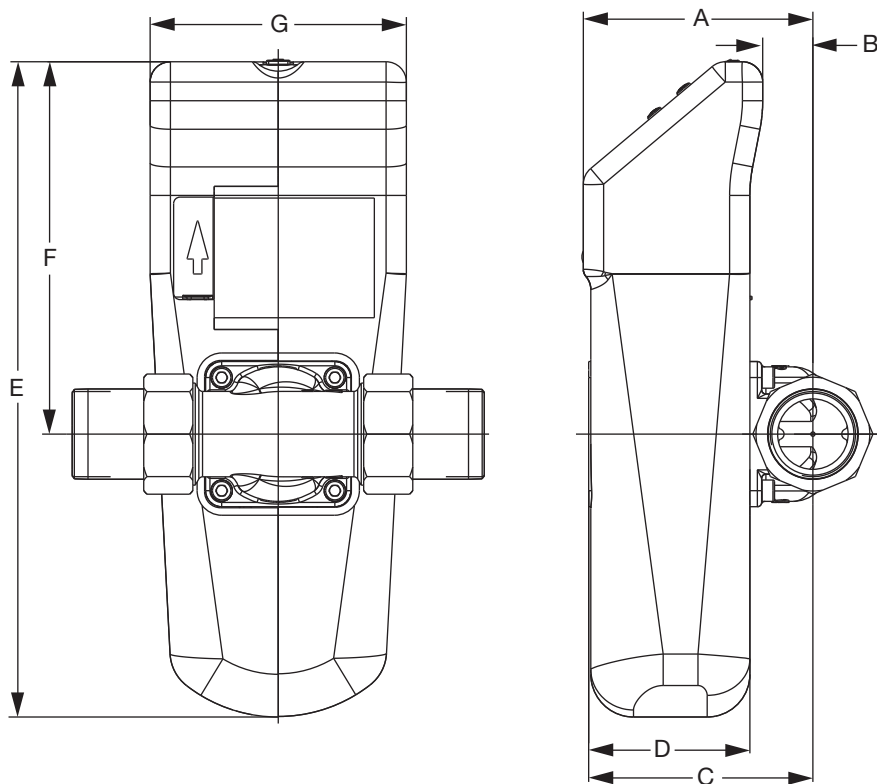
Max Service Temperature:	86°F (30°C)
Ambient Temperature:	50-140°F (10-60°C)
Max Pressure:	230 PSI (16 bar)
Batteries:	4 x AA
Power Supply:	9V DC
Output Contact:	24V DC / 2A max
In2:	12 V DC / 2mA

For Indoor Use Only

10. Connections



11. Dimensions



DIMENSIONS (for reference only)	Inches (mm)
A	4 $\frac{1}{4}$ (108)
B	1 $\frac{5}{16}$ (24)
C	4 $\frac{1}{8}$ (105)
D	3 (76)
E	12 $\frac{3}{32}$ (307)
F	6 $\frac{55}{64}$ (174)
G	4 $\frac{47}{64}$ (120)

12. Message Codes

DISPLAY	INDICATION	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
A1	The valve cannot rotate.	- Mechanism blocked - Motor failed	- Remove blockage - Press the mode button to try again
A2	The turbine cannot rotate.	Turbine is blocked	Consult factory
A3	A volume-base leak has been detected.	- Plumbing has a leak - Setting is too low	- Fix leak - Adjust setting. Push mode button to reset.
A4	A continuous flow >15.5 GPM has been detected.	- Plumbing has a leak - t2 setting too low - Actual flow exceeds 15.5 GPM for 30 minutes	- Fix leak - Adjust t2 setting - Reduce flow rate or the time of excess flow below 30 minutes
A5	The system has exceeded the vacation leak setting.	- Plumbing has a leak - Leak setting too low	- Fix leak - Adjust the setting
A6	The floor sensor has detected a leak.	Plumbing has a leak	Fix leak
A7	A signal has been received at contact In2.	Plumbing has a leak	Fix leak
A8	A leak has been detected by the 48 hour leak monitor.	Plumbing has a leak	Fix leak
A9	A time-based leak has been detected.	- Plumbing has a leak - Time setting is too low	- Fix leak - Adjust the setting
bA	The batteries are low.	The batteries are low	Replace the batteries

13. Installing the FloodBreaker

For the most complete protection, the FloodBreaker should be installed on the home's incoming water supply and as close to where the supply enters as possible. **(Check with local authorities for any restrictions.)** The FloodBreaker uses a universal body assembly and can be installed into either a vertical or horizontal pipe line as shown (Figure 32).

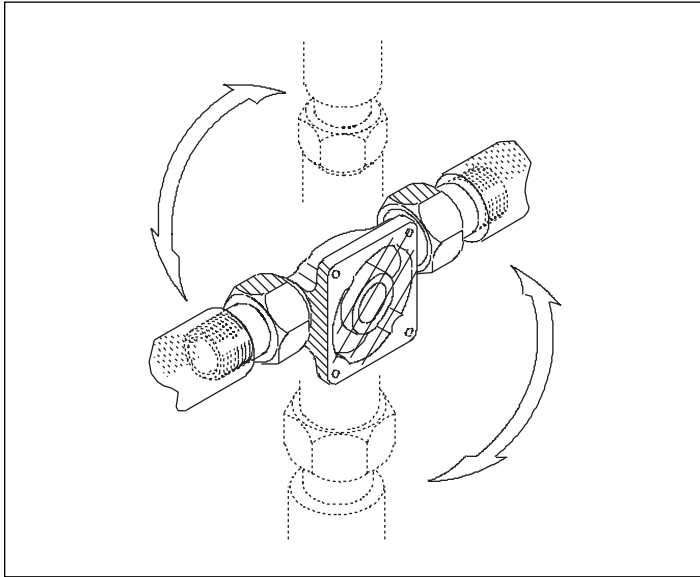


Figure 32

Install the union nuts and tailpieces onto the piping system before attaching them to the FloodBreaker body. Be sure to mount the body in the correct flow orientation. The triangle on one end of the body indicates the direction of flow (Figure 33).

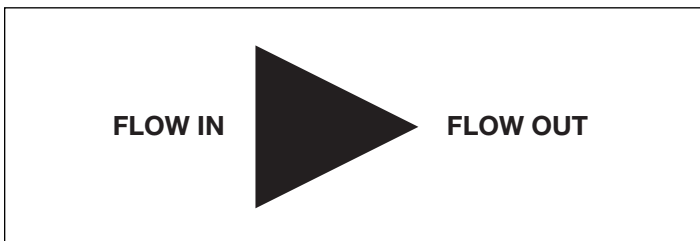


Figure 33

The FloodBreaker universal body may now be attached to the tailpieces already installed in the piping as shown (Figure 32).

Note: Remove the clear protective plastic covering from the face of the universal body.

Flush the piping before attaching the FloodBreaker to the body. (Figure 34).

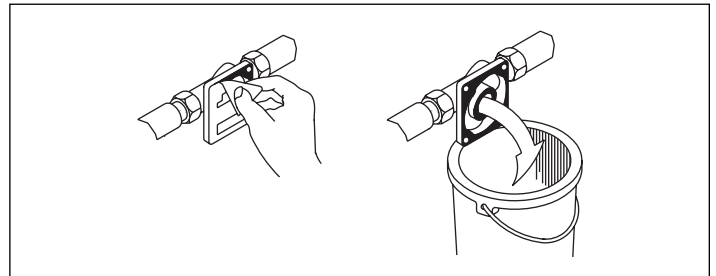


Figure 34

Attach the FloodBreaker to the universal flange body using the 2 O-rings and the 4 body bolts provided (Figure 35).

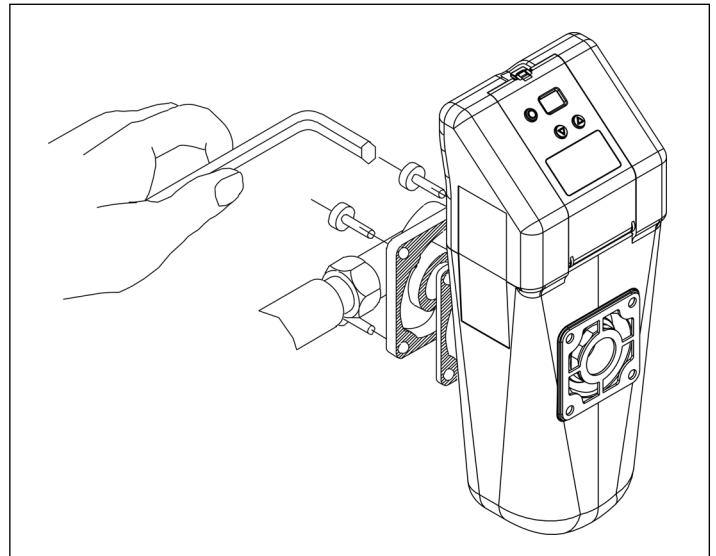


Figure 35

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TACO, INC., 1160 Cranston Street, Cranston, RI 02920 Telephone: (401) 942-8000 FAX: (401) 942-2360.
TACO (Canada), Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8. Telephone: 905/564-9422. FAX: 905/564-9436.
Visit our web site at: <http://www.taco-hvac.com>

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