Midnight Water Softener

Product Manual

ULTRA SOFT

WATER SOFTENER SPECIALISTS

Technical Parameters

Height: 460mm

Width: 260mm

Depth: 465mm

Transformer Input: 240V / 50 Hz

Transformer Output: DC12V/1.5A

Suggested Flow Rate: 500 to 1500 l/hour

Water Pressure: 1.5 to 4 bar

Water Temperature: 5 to 25C

Environmental Temperature: 4 to 30C

Water Hardness: <400 ppm

Capacity At 300ppm Hardness: 600 Litres Per Vessel

How Does A Duplex Water Softener Work?

Hard water flows down through the resin in both tanks and the hardness minerals are trapped. The softener tracks how much water is treated and displays the amount of water each tank can still treat.

E.G. Left Tank 1m^3 Right Tank 0.4m^3

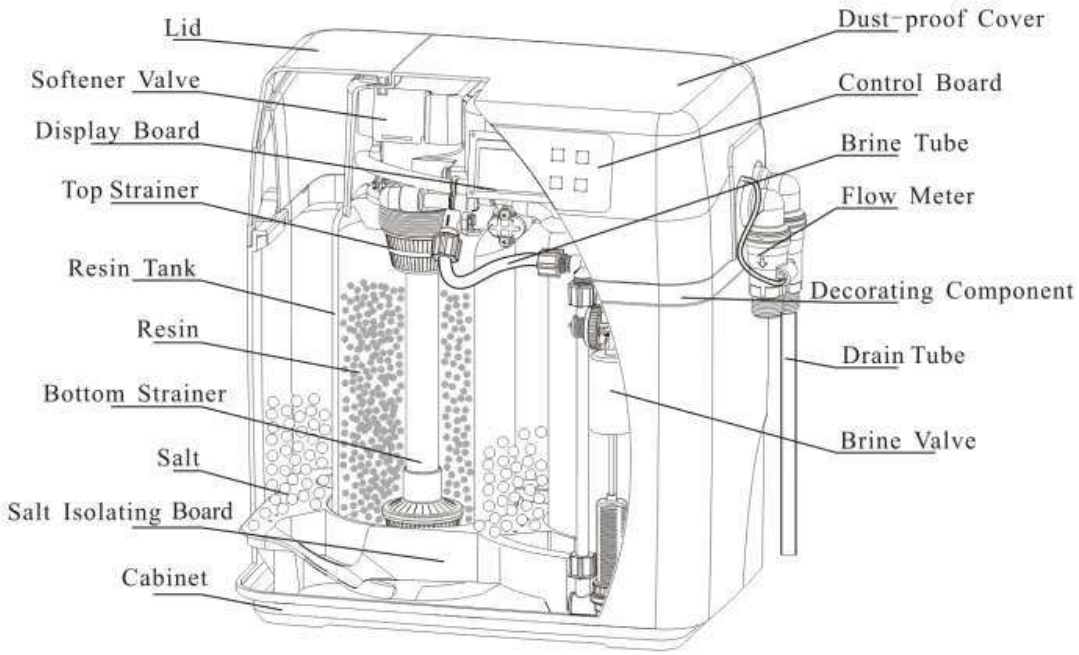
When one tank has trapped as much hardness as it can, salt is used to flush the tank out whilst the other tank continues to supply softened water.

Planning Your Installation

Please observe the regulations concerning the installation of your water softener. For guidance check out the water regulations advisory service web site (www.wras.co.uk). Check that you only have one rising main, that you have allowed space for access to the unit for possible future maintenance and salt replenishment. Check the water pressure; locate the rising main (stop cock), a drain facility and a power supply. Unless you are replacing an existing water softener, this installation will require you to carry out plumbing work and may require an electrical outlet to be fitted near the softener. You should only attempt this if you have the necessary skills.

The softener should be used for treating tap water or other qualified raw water.

Parts And Assembly



Positioning The Softener

Where possible the softener should be placed close to the rising main. Take care to allow hard water take off points for a drinking water facility and /or an outside tap.

The distance between the drain and the softener should be as short as possible. Ensure that both the drain and overflow will not freeze or reach a temperature above 40°C. If putting the softener within a cupboard ensure that the base is adequately supported. If the softener is being installed within your loft etc it is recommended to house the softener within a tank capable of storing at least 100 litres with an overflow fitted. The overflow on the tank should be below the softener overflow and be a minimum of ¾" in size.

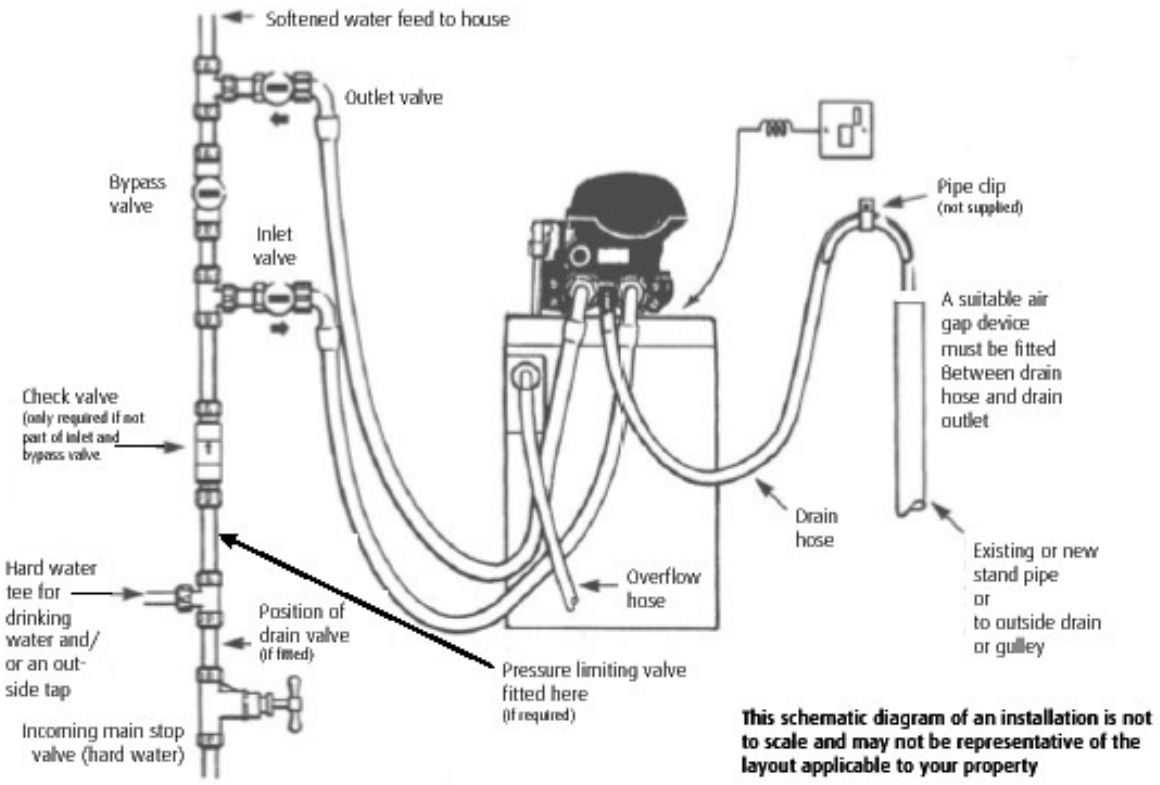
Single Check Valve

A suitable check valve should be fitted. This is usually inside the installation kit that can be ordered separately at https://ultra-soft.co.uk/product/water-softener-installation-kits/

Before you start the installation make sure that you have all the necessary fittings. The purchase of one of our standard installation kits will normally ensure that you have everything that you need for a typical installation.

Water Pressure Test

It is important that a pressure test is carried out. High and low water pressure can result in either damage to or failure of the softener. We recommend the fitting of a pressure limiter should your pressure exceed 4 bar (58 psi). The minimum working pressure for the system is 1.4 bar (20 psi).



Starting The Installation

Before starting the installation of the valves ensure that the stop cock is in the closed position. Once the valves have been fitted, set the valves as follows:

Softener Inlet and Outlet valve CLOSED, Bypass valve OPEN

You can now safely return the stop cock to the open position. Using the hoses provided (if installation kit ordered) connect the straight end of the hose having first inserted the washer provided to the softener inlet and outlet valves. Connect the angled end of the hose to the softener. The inlets and outlets and drain are marked on the softener.

Close the BYPASS and slowly OPEN the inlet and outlet

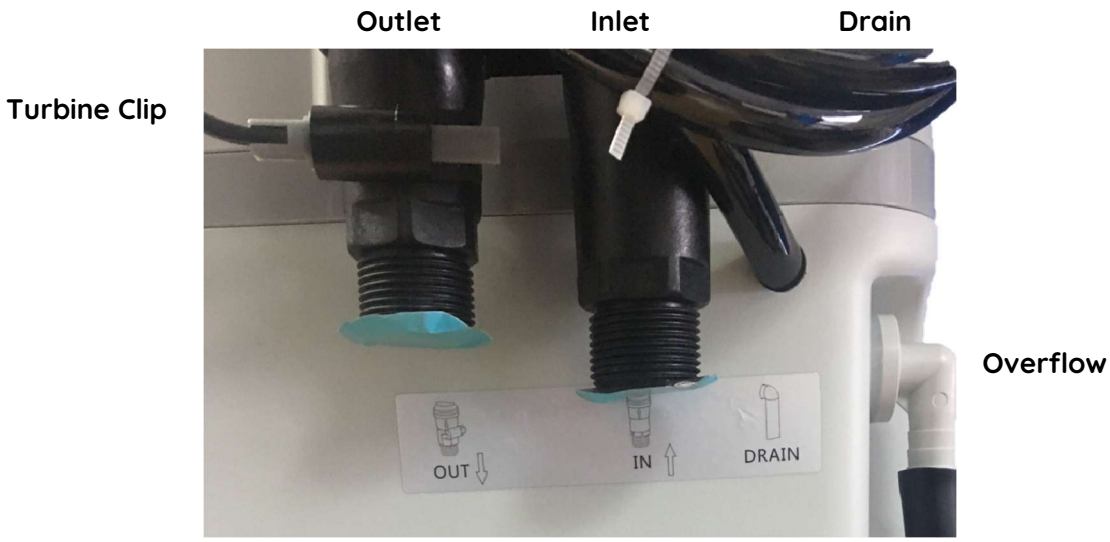
Waste Pipe Installation

Run the waste hose to either an up stand or outside drain, a minimum air gap of 20mm must exist at the end of the drain line. Softened water will have no adverse effect on a septic tank. Should you need to extend the drain hose this can be for a maximum run of 8 meters with a minimum daytime pressure of 40 psi. Ensure that the drain hose is not kinked or obstructed in any way as this will lead to an overflow of the softener.

The drain pipe can run uphill to a max of 1 meter with a min water pressure of 40 psi

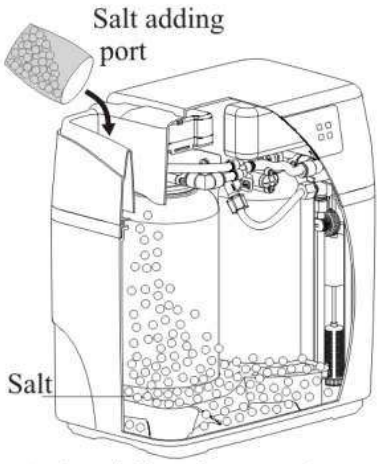
Overflow Connection

The overflow connection is the white ½" hose spigot on the rear or side of the cabinet. The overflow must be run downhill through an outside wall without kinks or restrictions. It is recommended the overflow hose be visible when it exits the outside wall.



Preparing The Softener To Go Into Service

Ensure turbine cable is clipped into outlet pipework. Put approximately 5 litres of water into the brine tank. You may also at this point put a quantity of salt into the tank. Do not allow the salt level in the brine tank to exceed the height of the overflow. You should keep the salt level above the water level and check the salt level on a regular basis until a usage pattern has been established.



Salt adding instruction

Water Softener Controller

If the version of the softener you have bought comes with a remote controller insert the batteries. The controller allows for remote control over the softener. To link the remote controller, on the controller press "up" and "down" button for 3 seconds, then press "down" to find SETID.

At this time, connect the power on the softener. Press the confirm button on the remote controller and wait to hear "Di" sound, it means the connection is successful.

The display shows information on the remaining capacity of the left and right tanks, the current flow rate from the softener and the time. You can use the controller to begin a manual regeneration or to adjust the time and hardness settings. This is done in the same manner as on the softener. See programming and commissioning softener section.

Programming The Valve

When plugging in the softener it will initially display the valve model information then go to the main screen showing the time, right and left tank capacities and whether each unit is in service or regeneration.

Changing The Language

The display should be in English. If for some reason it is not follow these instructions to change it. Within 6 seconds of switching on the power press and hold both  and  for 5 seconds to enter the advanced menu setup. The top item is language.

Press  to enter the language choices and press  or  to choose the language (English is the top choice).

When English is highlighted press  to save and  to exit

Time Of Day

Press the Menu button  to get into the Main menu. Select “Set Time of Day”. Use  or  to select the hours (24 hour time format) and Menu/Confirm  to move to minutes.

Use  or  to set minutes and CONFIRM  then press  to RETURN to the general settings menu.

Water Hardness

Press the Menu button  to get into the Main menu . Select “Set Water Hardness”. Use  or  to set the hardness. CONFIRM  then press  to RETURN to the main screen.

Commissioning The Softener

With the softener fully plumbed and the valve programmed commissioning can start.

Regeneration

When the softener is fully functional the regenerations will happen automatically.

To initiate an immediate regeneration press the  Manual button until the valve motor starts to turn. If during a regeneration cycle you need to skip through the cycle this can be done in the following way.

To skip to the next stage quickly press the  Manual button and this will take it to the next stage of the regeneration, this can be repeated to get to the end of the regeneration cycle.

Service

Water flows into the valve at the top, down through the resin and then up through the 'riser' tube in the middle of the vessel. As the water travels through the resin the ion exchange takes place. The controllers are set to automatically regenerate on capacity.

The display on the control will show the following; In service and the remaining capacity.

Routine Maintenance

Check the salt level (this may need to be done more regularly dependent on consumption). Also check that there is no sign of damage or leaks.

The salt level should always be above the water level.

Programming The Valve

Should the programming have been lost in transit the following instructions in conjunction with the setting sheet will allow you to re set it. For time, date and hardness settings see the programming settings on page 7. The settings below should not be altered without good reason.

Within 6 seconds of switching on the power press and hold both  and  for 5 seconds to enter the advanced menu setup. Use the  or  to choose the menu option then press  Enter the screen. Check or change the values using the  or  buttons then CONFIRM  and  to exit.

Once finished press return until the main display shows.

Suggested Settings

Set Language	English
Set Regen. Mode	A-02 Intelligent Immediate
Set Flow Rate Unit	m^3
Set Resin Volume	3.5 Litres
Set Brine D. Type	Downflow
Set Backwash Time	02:00 minutes
Set B.S.R.T	35:00 minutes
Set F.R. Time	03:00 minutes
Set B.R. Time	01:30 minutes
Interval Regen. D.	30 days
Replace Resin	No
Set Regen. Times	0300 times
Salt Adding Volume	000 Kg

Troubleshooting

Following the below as a guide you can find the most common problems that may arise; please consult this section before contacting us as most problems are easily cured by following this information.

Problem	Possible Cause	Solution
Softener fails to regenerate	A. Electrical service to unit has been interrupted B. Regeneration cycles set incorrectly C. Controller is defective D. Motor fails to work E. Turbine has come loose	A. Assure permanent electrical service (check fuse, plug, pull chain or switch) B. Reset regeneration cycles C. Replace controller D. Replace motor E. Check turbine is plugged in
Regeneration time is not correct	A. Time of day is not correct B. Power failure for more than 3 days	A. Check program and reset time of day B. Check program and reset time of day
Softener supplies hard water	A. Bypass valve is open or leaking (if present) B. No salt in brine tank C. Injector is plugged D. Insufficient water is flowing into brine tank E. Regeneration cycles not correct F. Bad quality of feed water or turbine blocked G. Adjusting bolt is open	A. Close or repair bypass valve B. Add salt to brine tank and maintain salt level above water level C. Change or clean injector D. Check brine tank refill time E. Set correct regeneration cycles in program F. Reduce inlet turbidity, clean or replace turbine G. Close adjustment bolt
Unit used too much salt	A. Improper salt setting B. Excessive water in brine tank	A. Check salt usage and salt setting B. See below
Excessive water in brine tank	A. Refilling time too long B. Water remaining after brine draw C. Foreign material in brine valve and/or plugged drain line D. Not installed safety brine valve and/or power failure whilst salting E. Safety brine valve breakdown	A. Reset correct filling time B. Check injector and remove foreign matter from brine pipe C. Clean brine valve and brine pipe D. Stop water supply and restart program install with safety brine valve in salt tank E. Repair or replace safety brine valve

Pressure loss or rust in pipe	A. Iron in water supply pipe B. Iron mass in the softener C. Fouled resin bed D. Too much iron in raw water	A. Clean water supply pipe B. Clean valve and add resin clean agent C. Check backwash, brine draw and brine tank refill. Increase frequency of regeneration and backwash time D. Iron removal equipment is required to install before softening
Loss of resin through drain	A. Air in water system B. Bottom screen broken C. Improperly sized DLFC	A. Assure that well system has proper air eliminator control B. Replace with a new screen C. Check for proper drain rate
Control valve cycles continuously	A. Locating signal wiring breakdown B. Controller is faulty C. Foreign material stuck in driving gear D. Time of regeneration steps set to 0	A. Check and connect locating signal wiring B. Replace controller C. Clean out foreign material D. Check program setting and reset
Drain flows continuously	A. Internal valve leak B. Power off when in back wash or fast rinse	A. Check and repair valve body or replace it B. Adjust valve to service position or turn off bypass valve and restart when electricity is being supplied
Interrupted or irregular brine	A. Water pressure too low or unstable B. Injector is plugged or faulty C. Air in resin tank D. Floccules in resin tank during backwash	A. Increase water pressure B. Clean and replace injector C. Check and establish cause D. Clean floccules in resin tank
Water flow out from drain or brine pipe after regeneration	A. Foreign material in valve which stops valve closing completely B. Hard water mixed in valve body C. Water pressure too high resulting in incorrect valve position	A. Clean foreign material in valve body B. Change valve core or sealing ring C. Reduce water pressure or use pressure relief connector function
Salt water going to service	A. Foreign material in injector or injector fails to work B. Brine valve cannot be shut off C. Time of fast rinse too short	A. Clean and repair injector B. Repair brine valve and clean C. Extend fast rinse time