

**KENT**  
Automatic  
Water Softener  
HOUSE of PURITY



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the QR code  
or by giving  
a missed call:  
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To speak to customer care executive call: 92-789-12345



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High  
Capacity

**KENT**  
Automatic  
Water Softener  
HOUSE of PURITY

## KENT Automatic Water Softener 40

Instruction Handbook  
for Installation, Operation  
and Maintenance.

Automatic  
Regeneration  
**WATER SOFTENER**



# Welcome to KENT

Dear Customer

Welcome to the world of KENT, leaders of water purification industry in India. With a KENT's product you have all reasons to smile, since at KENT, we take pride in the quality and laboratory-tested performance of our products.

We are confident that your decision to own KENT Automatic Water Softener 40 will go a long way in serving you with soft water. We assure you that you will be satisfied with its performance and quality which comes without any compromise.

This manual will familiarize you with the operation of KENT Automatic Water Softener 40. Before operating the unit, please read it thoroughly and retain it for future reference. To ensure that the warranty of your water softener is effective, it is important that you fill up the enclosed warranty card and mail us the installation report within 15 days of purchase. Should you need further assistance, do not hesitate to contact your nearest KENT dealer or branch.

Best Wishes

KENT RO SYSTEMS LTD.

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## Introduction

Presenting the all-new KENT Automatic Water Softener 40, to liberate you from the problems of hard water and provide your family with soft water. Automatic Water Softener 40 lathers up your bathing experience and maintains the texture of your skin and hair. With Automatic Water Softener 40, deposits on your sinks, tubs, showers, and stains on your clothing are problems of the past.

The microprocessor controlled compact KENT Automatic Water Softener 40 regenerates automatically, thus liberating you from the tedious and time consuming manual regeneration process. It's time to bid Good Bye to hard water and welcome a continuous supply of soft water, 24 hours a day, 7 days a week.

The quality of water in our environment is getting worse every passing day, leading to an ever increase in water hardness. This causes problems in pipes and effects the proper functioning of appliances using water, by increasing the maintenance and reducing their service life. The KENT Automatic Water Softener 40 would provide you and your family with advantages outlined below.

### Benefit and advantages

- Saves Energy,
- Greater wellness feeling
- Soft and smoother skin
- Increases the service life of electrical appliances and heaters
- Cost saving as it reduces the consumption of soap, fabric softeners, and other chemical products.
- Low maintenance cost
- Operation completely automatic.
- High Capacity

## Items in the box

Please verify the following items in the packaged box:

- |    |                                  |        |
|----|----------------------------------|--------|
| 1. | KENT Automatic Water Softener 40 | 1 No.  |
| 2. | 1 inch Quick Connect Adaptor     | 2 Nos. |
| 3. | Transformer                      | 1 Pcs. |
| 4. | Instruction Manual               | 1 No.  |

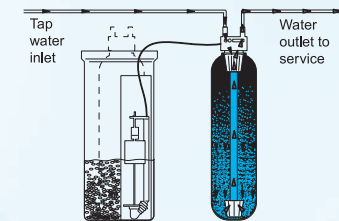
## What is hardness?

Hardness is the quality of scaling salts present in the water, which are mainly composed of low solubility salts of calcium and magnesium. These salts due to its chemicals properties, have a tendency to precipitate, producing scale on pipes and obstructing them as they accumulate in this way the hardness has a higher tendency to scale on electrical resistors and to precipitate into heaters when temperature increases.

### How does the System Works

Water softener is carried out by the means of ion exchange process. In this process, the system uses resins with a chemical capacity to capture calcium Ca and Magnesium Mg ions and remove them from water.

When calcium and Magnesium ions are captured by the resin, two sodium Na ions are released, which due to its chemical properties produces salts with the higher solubility avoiding all the hardness related problems.



### Regeneration of the System

The quantity of calcium and magnesium ions that the resin may retain is limited, therefore, the water volume that can be treated by softener is limited as well. The system must periodically carryout a process known as regeneration, which allows the resin top recharge with sodium ions, so it can continue to soften water.

In KENT Automatic Water Softener 40, the regeneration process starts automatically.

## Salient Features of KENT Automatic Water Softener 40

- 24 hours control and monitoring with a timer; automatically regenerate the media bed at the system's set time of regeneration according to the set generation frequency.
- Enhances the quality of water by replacing hard salts of Magnesium & Calcium with Sodium.
- Fully automatic microprocessor controlled time based regeneration process regenerates at a fixed time.
- High capacity operation as regeneration can be done any number of times.
- High quality resin for long life and efficient ion-exchange process.
- Maintenance-free, long-life valve.
- Space saving design - resin tank housed with brine tank.

## Important Instructions

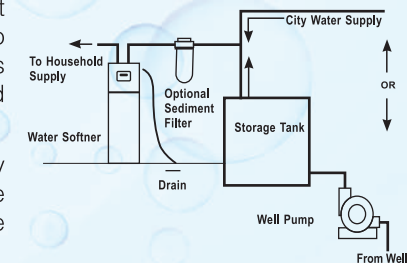
- Without reading and truly understanding the contents of this user manual, please do not perform any operation on the control valve.
- Strictly prohibit leaning position when shipping, installing and using this product, otherwise it would be damaged inside.
- Initiate a regenerate cycle after being inactivated in a long period of time, and then turn on the tap for several minutes before resuming normal use.
- Do not disconnect power during service time to keep the timer run normal that controls the regeneration function.
- If water usage or hardness of the raw water dramatically increases (comparing to the normal usage), the frequency of regeneration should correspondingly increase.
- Hot water can cause severe damage to the softener system. For boiler water and water heaters user, ensure a total run of the piping between the softener and the boiler is not less than 3 meters. It is recommended to install a check valve between the filters and the boiler if unable to meet the required piping length.
- The input water pressure must be between 20 to 125 psi, no negative water pressure is allowed.
- No chemical allowed at the inlet and outlet connections sectors. No excessive force which can damage the plastic conjunction parts should be applied by any tools.
- The required operating temperature for softener is 40°C.
- Please set up a waterspout on the floor nearby the softener in case of any leakage accident.
- Avoid installation under direct sunlight. Exposure to excessive sun heat may cause distortion or other damages to non-metallic parts.
- Do not subject the water softener to freezing temperatures.
- Please select regeneration salt pill as regenerant.

## Softening Process

- Hard Water containing high concentrations of dissolved magnesium and calcium enters the softener through the 'IN' port. It passes through the control valve into the tank, where it flows down through a specially prepared ion-exchange resin that 'softens' it.
- The resin consists of specially manufactured beads that have been saturated with sodium ions. The process of 'Softening' occurs as the ions of hardness minerals Calcium and Magnesium are attracted to the charged resin beads. They swap their places with Sodium ions resulting in Soft Water.
- Soft Water then enters the strainer basket, located at the bottom of tank and passes upward through a long central tube, known as the Riser. Water exits the softener via the control valve and is then ready to use.
- Eventually when the beads of resin become saturated with hard minerals, the softener automatically starts regenerating. The regeneration process initiated by the timer, washes down the hard minerals to drain via a drain tube. By the time regeneration is over; the resin bed is rinsed, resettled and recharged with Sodium ions. KENT Automatic Water Softener 40 is set to soften your water again.

## Installation Location

- To condition the complete water supply at home, install the water softener close to main water supply inlet. Outdoor faucets should remain on hard water to avoid wastage of conditioned water and salts.
- A nearby drain is required to carry away regeneration discharge (drain) water. Use a floor drain, laundry tub, sump, standpipe or any other options.
- Any other conditioning equipment should not be installed between the water softener and main water supply inlet.
- The location chosen for the installation must have enough space for the system itself, its accessories, and connections and to carry out a proper maintenance.
- The system should not be installed next to heat source or where it receives a direct flow of hot air.
- Avoid external dips from pipes, drains, etc onto the system
- Should the softened water be supplied to a hot water it would be necessary to install a dependable check valve between water softener and the supply in order to prevent hot returning to the system and damaging it.



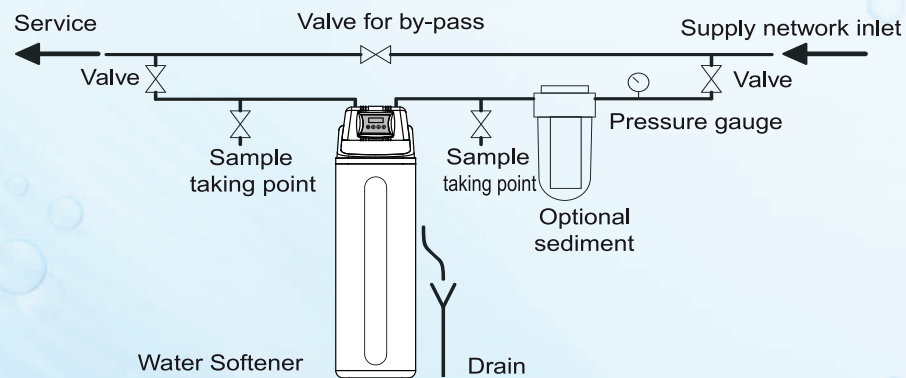


## Installation Procedure

KENT Automatic Water Softener 40 installation must be done according to the following schemes and in accordance with the local laws. Please respect assembly and installation indications given in the manual. Contact Kent technical service for any support.

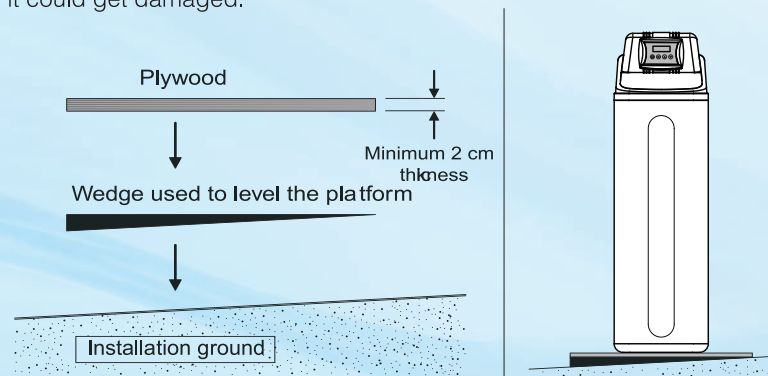
- Close main water supply valve, near the well pump or water meter or any other water source to softener.
- Open all the plumbing fixtures in house and outside faucets to completely drain out water from the house hold pipeline.
- Move the Water softener into installation position.

### Installation diagram



### Levelling the water softener

The System must be installed onto a levelling surface. If necessary place it on a plywood platform, which must be 2 cm thick. Then level the platform using a wedge. Under no circumstances should the wedge be placed directly under the salt tank, since it could get damaged.

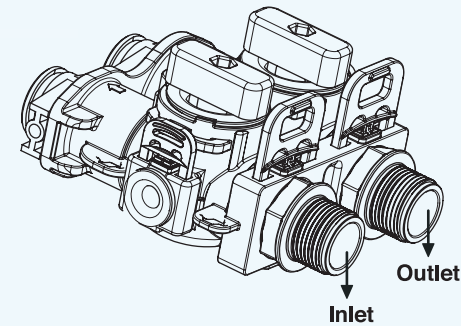


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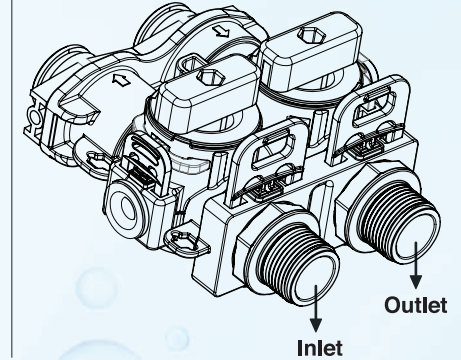
### Isolation bypass

The System includes a bypass to isolate the system if necessary. The system can be positioned as follows.

#### SERVICE

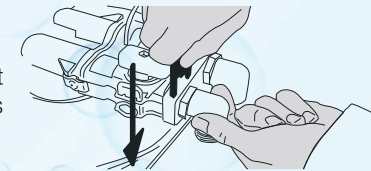


#### BY-PASS



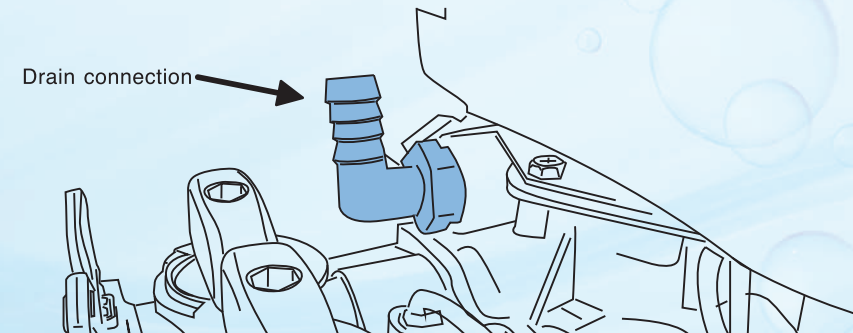
### Assembly fittings

The system is supplied with a set of inlet and outlet connections. Please make sure that fastening clips are tightened on the connectors.



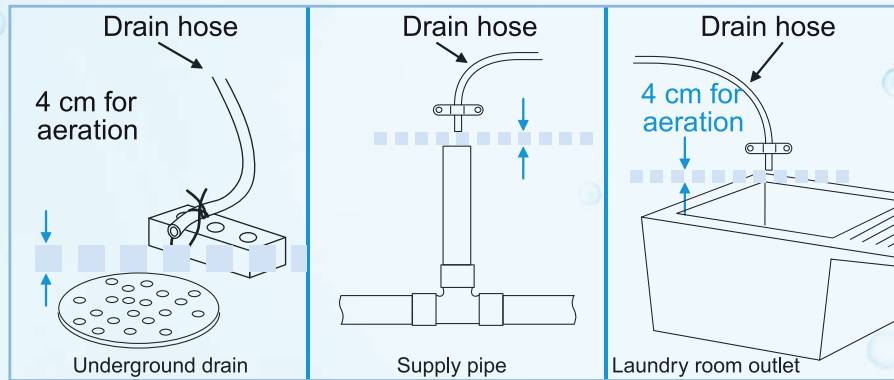
Assembly of the overhead flow hose and drain connections

The drain connections, where water from regeneration will be driven must be underneath the installation whenever possible. Drain connection must always have a free outlet. The diameter of this connection must be a minimum size of 1". The maximum distance between the water softener and the drain cannot be placed higher than 6 m.



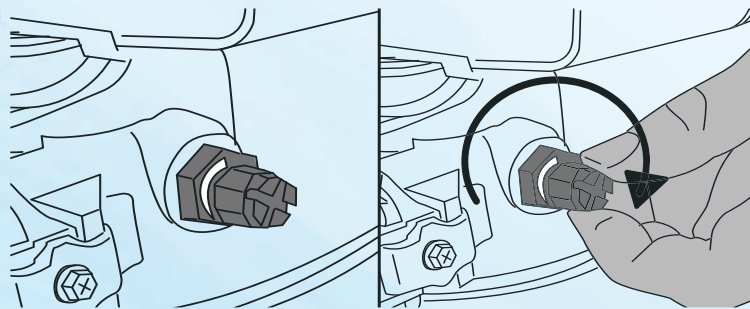
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The overflow hose of the system must be driven towards a nearby drain outlet. Under no circumstances should this pipe be on a higher level.




### Adjustment of Residual Hardness

In order to change the residual hardness, lightly open the regulating valve, as indicated in the image.



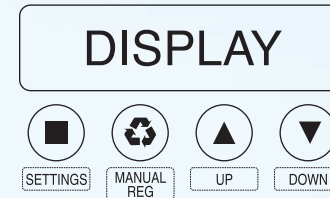
Then measure the water hardness present on the outlet of the system and check that it fits within the desired values. Otherwise adjust regulator and check again

 **Warning:** The hardness regulator is supplied in a closed position, therefore is the system is not adjusted then it would supply fully softened water.

## Controller start up

### Programming

1. Key Pad Configuration:



Setting Menu "■":

- This function is to enter the basic set up information required at the time of installation.

Manual Regen "♻️":

- This function is to initiate an immediate or delayed manual regeneration.

Up and Down key "▲", "▼":

- These buttons are used to increase or decrease the value of the settings while in the programming mode.

Program will be back to standby status if any key was not operated in 1 minute.

Without being operated in 3 minutes, the keys will be locked.

2. Programming Levels:

There are 4 levels to the valve program. Master options and Factory options are typically adjusted at the factory. These options link the PCB function with the type of control valve and should not be tampered with. Advanced options are used to configure the unit when the valve is assembled to the tank so that it can function as the proper size and intended system operation. Settings are the final options chosen when the unit is installed to a specific location.

PROGRAM LEVEL	USER ACCESS
MASTER	These settings are programmed by the factory. The settings are important for the operation of the valve that should only be changed by a qualified person.
FACTORY	These settings are programmed by the factory and should be adjusted when the valve is assembled into a unit or system. It contains important settings so the valve will operate properly for the type of system it is intended for. The settings should only be changed by qualified person.
ADVANCED	These settings are programmed when the unit is assembled. The settings should only be adjusted by a qualified person.
SETTINGS	These settings are programmed when the unit is installed. The settings should only be adjusted by a qualified person.

### 3. Main Display Options:

The main display page will pause on the Date and Time page for 5 seconds. Then it will continually scroll through all of the system diagnostic display parameters. Depending on the Valve Type some parameters will not be displayed.

To manually scroll through the diagnostics, press the down or up key.

To reset the TOTAL REGENS, TOTAL GALLONS OVER RUN TOTAL, or PEAK FLOW RATES, press and hold the MENU until the value changes to zero.

PARAMETER	DESCRIPTION
Jul./17/2018 8:30 PM	Month, Day, Year, Time
TOTAL 4 DAYS REMAIN 3 DAYS	The number of days remaining before regeneration. This option is only in filter mode.
TOTAL 1,500 GAL REMAIN 1,200 GAL	The total amount is the system capacity when fully regenerated. The remaining is the capacity left in the system.
PEOPLE 2 RESERVE 150 GAL	Number of people in the household and the calculated reserve capacity. When remaining reaches reserve capacity a regeneration will be scheduled.
EST. DAYS TO NEXT REGEN 06 DAYS	The estimated number of days until the next regeneration will occur.
LAST REGEN 9/24/12	The date of the last regeneration.
TOTAL REGENS 10	The total number of regenerations.
TOTAL TREATED 1590 GAL	The total amount of gallons treated by the system.
OVER RUN TOTAL 0500 GAL	The total amount of water that has exceeded the system capacity over the last 4 regenerations. When remaining goes to zero, the gallons used will be added to over run total.
CURRENT 1.5 gpM PEAK 6.5 gpM	The current flow rate and the peak flow rate since the last regeneration.
DAY OVERRIDE OFF	The maximum number of days for the regeneration cycle.
RINSE OVERRIDE OFF	The current setting for skip the rinse cycle.
DELAYED REGEN OFF	Advises whether a delayed regeneration has been scheduled manually or automatically.
REGEN TIME 2:00 AM	The current setting for regeneration time.
REFILL TIME 3:00 MIN	The current calculated refill time.
(INFO.)	The Dealer information (when OEM setting-DEALER INFO. setting is Enable.)
VALVE MODE SOFTENER UF	The current setting of the valve mode.
ID 85HEUF-SXXXX	The valve ID.

### 4. Manual Regeneration:

#### DELAYED REGENERATION

Press and release the MANUAL REGEN Button to set a delayed regeneration that will occur at the regeneration time. To cancel the delayed regeneration, press and release the MANUAL REGEN button.

#### IMMEDIATE REGENERATION

To start an immediate regeneration (or step valve through each position), press and hold the MANUAL REGEN Button for 3 seconds (until beeps). The valve will start an immediate regeneration. Press any key to skip to the next cycle.



Parameters can be converted from US to Metric system.

### 5. Settings for UF (Up Flow) Water Softener

Press Settings key for 3 seconds or until you hear a beep.

SOFTNER UF
TIME OF DAY 12:01 PM
YEAR 2012
MONTH AUGUST
DAY 21
SET HARDNESS 20 gpG
SET PEOPLE 4
SALT SETTING HIGH EFFICIENCY STANDARD IRON & MN
WATER TYPE MUNICIPAL WELL / OTHER
REGEN TIME 2:00AM
LOAD DEFAULT NO
PROGRAMMING COMPLETE

#### CAUTION:

The values in this page are for illustration purpose and can be changed by the factory without notice. Please contact Customer Service to confirm proper settings.

#### TIME OF DAY, YEAR, MONTH, DAY,

Time of day is for normal operation of system and the scheduling of the regeneration time. The date is used in a diagnostic function to track the last time the system regenerated.

#### SET HARDNESS

This value is the maximum compensated water hardness in grains per gallon of the raw water supply. It is used to calculate the system capacity. If Ferrous Iron is present add 4 gpg for every 1 ppm of Ferrous Iron.

#### SET PEOPLE

This value is the number of people living in the home. It is used to calculate the amount of water needed for daily use and the reserve capacity of the system.

#### SALT SETTING

There are 3 settings to choose in the MENU SETTINGS. High Efficiency, Standard Capacity, and IRON & MN. These settings will determine the salt dosage and capacity for the system.

## WATER SOURCE

This setting will determine if the BACKWASH OVERRIDE function will be on or off. Select MUNICIPAL if the water source is clean (<1NTU turbidity) and the system will skip the back wash cycle based on the setting in BACKWASH OVERRIDE. Select WELL / OTHER if any Iron or Manganese is present or if the water source is not clean (>1NTU turbidity). The system will back wash every time.

## REGEN TIME

This setting determines the time of day to perform a scheduled regeneration.

## REGEN DAYS

This value is the number of days between regenerations or back washes to clean the filters.

## GALLONS

Default value is OFF. Adjust the GALLONS to set the capacity. This will cause the unit to regenerate either when the gallons remaining goes to zero or the days between regeneration is zero. Which ever occurs first.

## LOAD DEFAULT

If loading default, the process time of each regeneration cycle will be reset to the default value setting.

## Softener start up

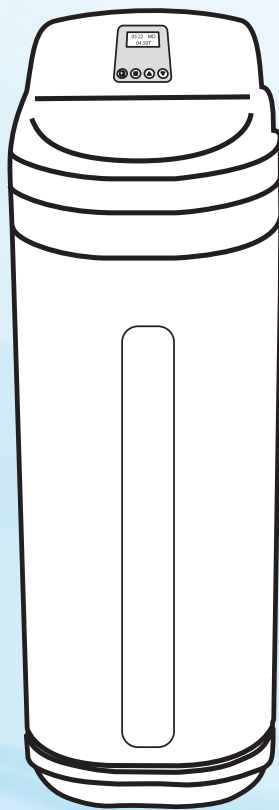
- Before starting the system up, please check that all steps previous to installation, assembly and programming have been properly followed, according to this instruction's manual, as well as the regulations in force. To start the system up, please follow the instructions below.
- Do not charge the system with salt until the end of the start-up. In order to prevent any air pressure on the water softener and the pipes, please follow these instructions in order.
- Plug the Programmer to the power supply using the transformer included in the system.
- The programmer must be in the service position
- Place the by-pass valve on the 'By-Pass' mode.
- Fully open the two or more cold and treated water faucets located near the water softener.
- Press the REGEN button for 3 seconds to start the regeneration. Now you are inside the regeneration menu. Select the immediate regeneration. After some time the system would move to the backwash stage.
- Slowly open the water inlet valve to allow the entrance of water inside the system. At this point the, inlet water flow must be rather low, as in this position the water will flow from the bottom and flow upwards to the drain.
- When water starts flowing continuously through the drain, fully open water inlet of the system. At this point the water the bottle would be full of water so a higher flow would not cause any damage. Water going out of the drain may be bit yellowish or brown in colour due to the preservation of the resin.
- Let the water flow through the drain until it runs clear.
- Close the water supply to the system for five minutes so that the resin can settle down at the bottom of the bottle, and the air that might be left inside would flow towards the upper end of the bottle.
- Open the inlet valve of the system & wait for few minutes in order to make sure that the remaining air has been purged.
- Cancel the current regeneration stage and move forward to the filling stage of the tank. Now the brine tank will automatically start to fill up with water. Let this stage run the full process. At the end of the stage, the system will finish the regeneration which began at point 5.
- Start another regeneration according to the point 5 and wait until the system reaches the backwash stage. Press any button to move forward to the brine suction stage.
- The system should suck water from the brine tank. Let the suction work for some minutes just to ensure that it is working properly.
- Cancel all the remaining stages of the regeneration.
- Put the by-pass in the service mode and check that the treated water is properly softened.
- Charge the brine tank with salts
- The system is ready to operate.



## Maintenance

In order to guarantee the proper operation of the system, the following verifications must be carried out as frequently as indicated.


Verifications	Frequency
Check the salts level in the tank	Monthly
Check inlet hardness	Monthly
Check treated water hardness	Monthly
Anti-scaling	Yearly
Cleaning of salt tank	Yearly
Technical Service verification	Yearly



## Basic Troubleshooting

S. No.	Problem	Cause	Solution
1.	Controller does not work	<ul style="list-style-type: none"> <li>Transformer is not plugged in</li> <li>Defective power cord.</li> <li>Power off</li> <li>Defective Transformer.</li> </ul>	<ul style="list-style-type: none"> <li>Connect to constant power source</li> <li>Replace Cord</li> <li>Just wait for power on</li> <li>Replace the transformer.</li> </ul>
2.	Incorrect time of Regeneration	Power outage causes inaccurate timing	Refer user manual to reset the timer.
3.	Leaking	Loose connection	Tighten Joints
4.	Noisy	Air exists in the system	Re-backwash the system to vent air
5.	Milk-White water	Air exists in the system	Turn on tap to vent Air
6.	Unsatisfied water hardness	<ul style="list-style-type: none"> <li>Poor raw water quality</li> <li>Time to regeneration is too long</li> <li>Resin disabled</li> </ul>	<ul style="list-style-type: none"> <li>Call dealer.</li> <li>Reset time of regeneration.</li> <li>Re-regeneration or use new resin.</li> </ul>
7.	Softener fails to use Salt	<ul style="list-style-type: none"> <li>Water Pressure is too low</li> <li>Brine line plugged</li> <li>Injector is plugged</li> <li>Internal control leak</li> </ul>	<ul style="list-style-type: none"> <li>Line pressure must be at least 20 psi.</li> <li>Clean brine line.</li> <li>Clean or replace injector and screen</li> <li>Check piston, seats, and spacers.</li> </ul>
8.	Brine container overflow	Refill time disorder	Call your dealer
9.	Water hardness remains	<ul style="list-style-type: none"> <li>fail to regenerate automatically</li> <li>Brine concentration is poor.</li> <li>Injector is plugged.</li> </ul>	<ul style="list-style-type: none"> <li>Check power of controller.</li> <li>Keep the brine tank full of salts.</li> <li>Disassemble the injectors and clear it by washing with water.</li> </ul>
10.	Control backwashes at excessively low or high rate	<ul style="list-style-type: none"> <li>Incorrect backwash controller used</li> <li>Foreign material affecting controller operation</li> </ul>	<ul style="list-style-type: none"> <li>Replace with correct size controller.</li> <li>Remove controller and ball. Flush with water.</li> </ul>
11.	Untreated water leakage during service	<ul style="list-style-type: none"> <li>Improper regeneration</li> <li>Leakage of bypass valve</li> <li>O-ring around riser tube damaged.</li> <li>Incorrect regeneration cycle setting</li> </ul>	<ul style="list-style-type: none"> <li>Repeat regeneration making certain that the correct salt dosage is set.</li> <li>Replace O-Ring</li> <li>Repeat regeneration cycle.</li> </ul>

## Specifications

Product	:	KENT Automatic Water Softener 40
Product Code	:	111090
Product Generic Name	:	Water Softener
Dimensions (mm)	:	330 (L) x 570 (W) x 1336 (H)
Mounting	:	Floor Standing
Resin Volume	:	40 L
Net Weight	:	55 kg
Flow Rate	:	Max. 4000 L/hr
Input Power Supply	:	Single Phase 110-240 V AC, 50-60Hz 
Output Power Supply	:	12 V AC
Total Power Consumption	:	3.5 W