

OWNER'S MANUAL



For the installation, operation and service of

PWCE16P12

PWCE35P12

PWCE54P12

Should you the installer or owner be unfamiliar with the correct installation or operation of this type of equipment you should contact the distributor/manufacture for the correct advice before proceeding with the installation or operation of this product.

EQUIPMENT INSTALLATION

General Warnings and Safety Information Electrical

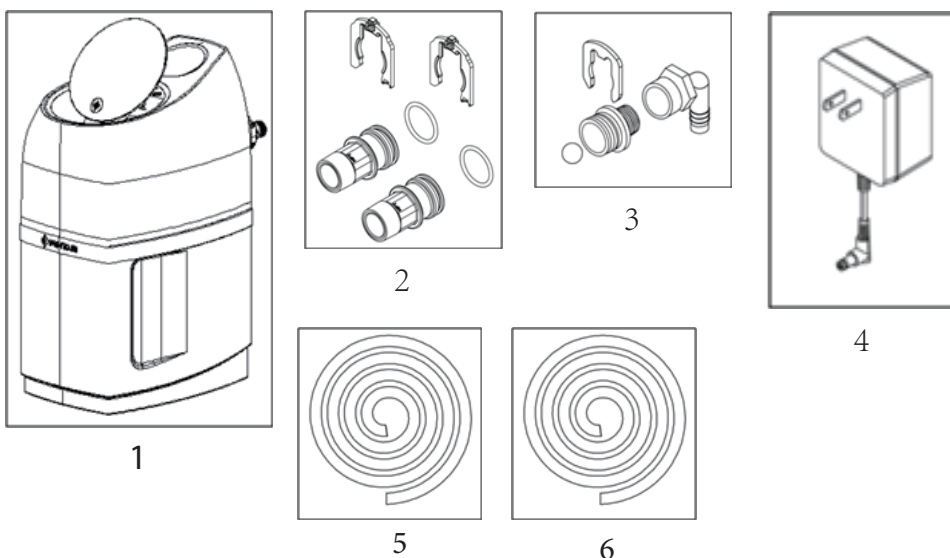
There are no user-serviceable parts in the AC adapter, motor, or controller. In the event of a failure, these should be replaced.

- All electrical connections must be completed according to local codes.
- Use only the power AC adapter that is supplied.
- The power outlet must be grounded.
- To disconnect power, unplug the AC adapter from its power source.

Mechanical

- Do not use petroleum based lubricants such as Vaseline, oils, or hydrocarbon based lubricants. Use only 100% silicone lubricants.
- All plastic connections should be hand tightened. Teflon* tape may be used on connections that do not use an O-ring seal. Do not use pliers or pipe wrenches.
- All plumbing must be completed according to local codes.
- Soldering near any plastic fittings should be done before connecting fittings to the valve. Excessive heat will cause interior damage to the valve.
- Observe drain line requirements.
- Do not use lead-based solder for sweat solder connections.
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.
- It is not recommended to use sealants on the threads. Use Teflon* tape on all threaded connections.

*Teflon is a trademark of E.I. duPont de Nemours.

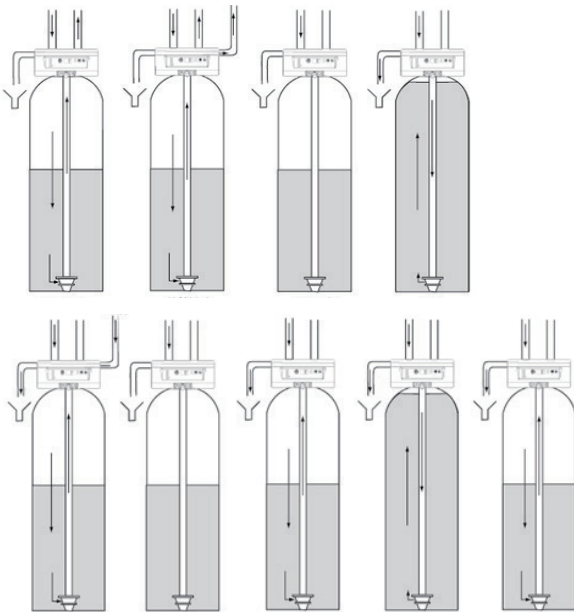


EQUIPMENT INSTALLATION

General

- Observe all warnings that appear in this manual.
- Keep the unit in the upright position. Do not turn on side, upside down, or drop. Turning the tank upside down will cause media to enter the valve.
- Operating ambient temperature is between 35.6°F (2°C) and 120°F (49°C).
- Operating water temperature is between 39.2°F (4°C) and 100°F (38°C).
- Working water pressure range is 0.14 to 0.35 MPa.
- Use only salts designed for water softening. Do not use ice melting, block, or rock salts.

SYSTEM RECHARGE CYCLES (8-CYCLE OPERATION)



Service (Downflow):

Untreated water is directed down through the resin bed and up through the riser tube. The hardness ions attach themselves to the resin and are removed from the water. The water is conditioned as it passes through the resin bed.

1. Brine Refill:

Water is directed to the salt tank at a controlled rate, to create brine for the next recharge.

2. Brine Prep (Dissolve Salt)

After the refill cycle fills the salt tank with water, this cycle allows time for the salt to dissolve into the water.

3. Backwash 1 (Upflow):

The flow of water is reversed by the control valve and directed down the riser tube and up through the resin bed. During the backwash cycle, the bed is expanded and the debris are flushed to the drain.

SYSTEM RECHARGE CYCLES (8-CYCLE OPERATION)

4. Brine Draw & Slow Rinse (Downflow):

The brine draw cycle takes place during the slow rinse cycle. The control directs water through the brine injector and brine is drawn from the salt tank. Brine draw is completed when the air check in the salt tank closes. The brine is directed down through the resin bed and up through the riser tube to the drain. The hardness ions are displaced by sodium ions and are sent to the drain. The resin is recharged during the brine cycle.

5. Repressurize Cycle (Hard Water Bypass Flapper Open):

This cycle closes the flappers for a short time to allow the air and water to hydraulically balance in the valve before continuing the recharge.

6. Fast Rinse 1 (Downflow):

The control directs water down through the resin bed and up through the riser tube to the drain. Any remaining brine residual is rinsed from the resin bed.

7. Backwash 2 (Upflow):

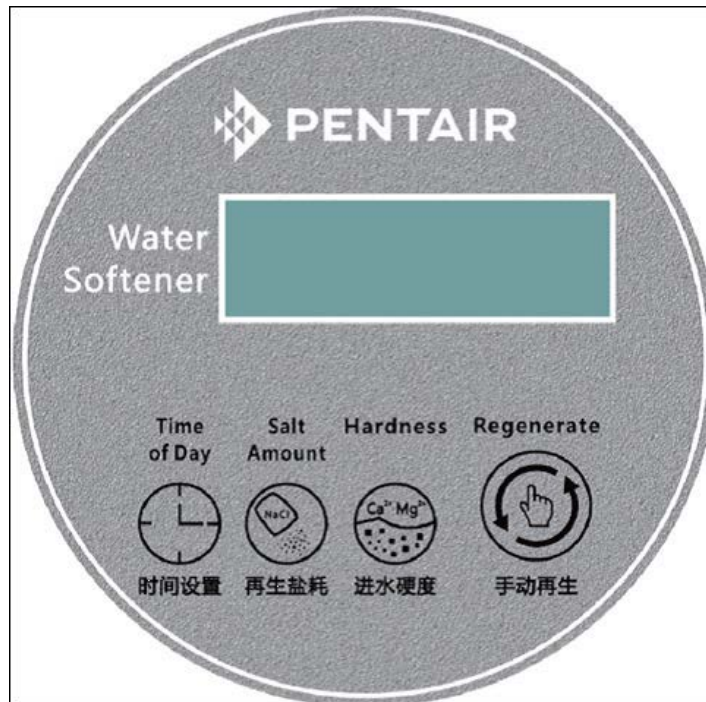
The flow of water is reversed by the control valve and directed down the riser tube and up through the resin bed. During the backwash cycle, the bed is expanded and the debris are flushed to the drain.

8. Fast Rinse 2 (Downflow):

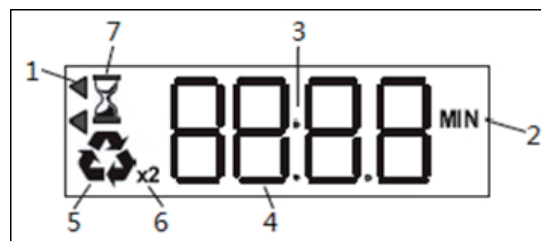
The control directs water down through the resin bed and up through the riser tube to the drain. Any remaining brine residual is rinsed from the resin bed.

DIRECTIONS

Commissioning and setting Control Valve panel



Description of Control Valve panel display

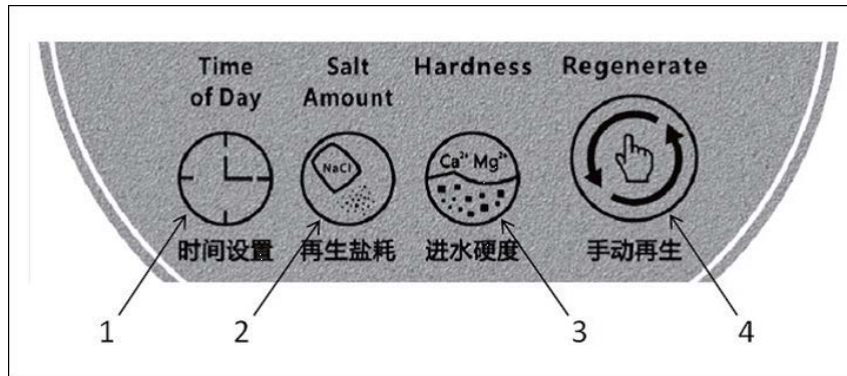


Display Icons

1. Indicates water flow when displayed. Arrows alternate faster as flow increases.
2. When "MIN" is displayed, the value in minute increments. "MIN" is displayed during recharge; the value displayed is the minutes of recharge remaining.
3. Colon (double dots) flashes as part of the time display. It indicates normal operation.
4. Four digits used to display the time or program value. It is also used for error codes.
5. The recycle sign is displayed (flashing) when a next recharge has been called for. Also displays (continuously) when in recharge.
6. When "x2" is displayed, a second recharge has been called for.
7. The hourglass is displayed when the motor is running.

NOTE: During normal operation (Service mode) the display will show the current time of the day with the colon blinking. This will alternate with a display of the quantity remaining to be treated before recharge.

DIRECTIONS

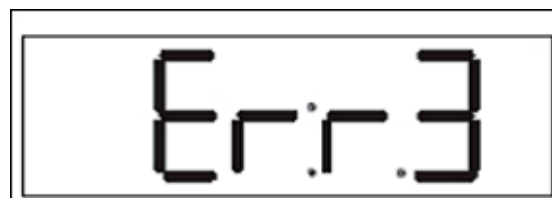


Keypad Buttons

- 1 Time of Day: to set the current time
- 2 Salt Amount: to set the mode to salt dosage
- 3 Hardness: to set the current hardness
- 4 Regenerate: To start recharge at the next scheduled time of recharge or for an immediate recharge. To start a second manual (delayed) recharge. To stop a second manual recharge.

Recharge

- The water supply valve should be off or be in by-pass mode.
- At initial power-up, the camshaft may need to rotate to the HOME (in service) position.
- Camshaft may take 1 to 2 minutes to return to HOME position.
- Err 3 will be displayed until the camshaft returns to HOME position (Initial Power-Up Display).
- If more than 2 minutes lapse, verify that the motor is turning the camshaft. If not, check the "Troubleshooting" section.



Initial Power-Up Display

When the camshaft has reached the HOME (service) position the display will show "--:--". If the time of day alternating with remaining capacity is displayed, then the controller has used its short term memory to load settings. Short term memory will hold settings for approximately eight hours.

Settings include:

- Water used on the day
- Water used since the last recharge
- Current time
- Recharge status

DIRECTIONS

Un-programmed controls will have the following settings.

Default settings:

- Hardness - 250 ppm
- Salt setting - HE(High Efficiency)
- System will recharge every 7 days (calendar override) even if no water is used. Unplug system during long period of no water use. Calendar override is not programmable.

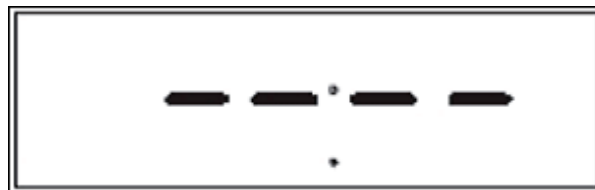
In addition:

- Water used is set to 0
- The internal system clock is set to 8:00 AM. The display continues to show “- :- -” until the internal clock is updated manually.
- A recharge will initiate when the internal system clock reaches 2:00 am. The regenerate icon will flash.

INITIAL START UP INSTRUCTIONS

Set the time

Press the Time of Day button. Press it again within 5 seconds and the time will increment. Press and hold for 2 seconds to rapidly increase the settings. Release the button and the time will save in 5 seconds. Time and the remaining water production (in tons) displays alternately.



Pick the salt setting

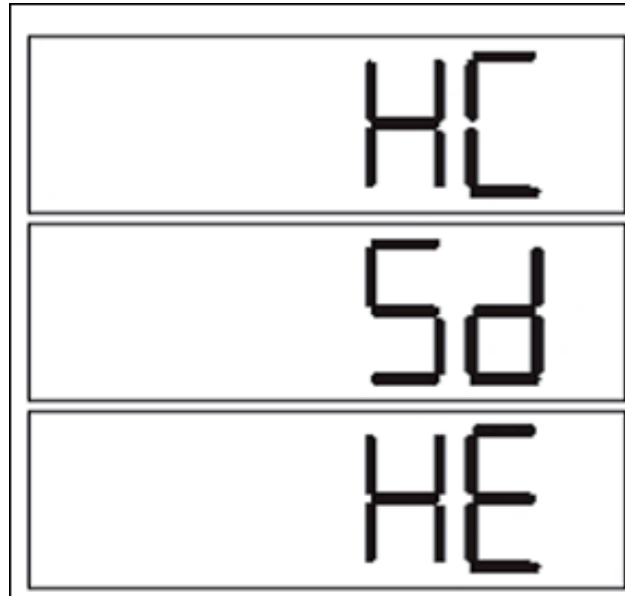
The controller starts (defaults) with the HE (high efficiency) setting. If you want to check or change the setting, press the Salt Amount button to display the current setting. To change it, press the Salt Amount button again within 5 seconds. The new setting will save in 5 seconds.

HC: This setting maximizes the system capacity between recharges and will also use the most salt. This setting can be used for high water hardness or high water usage.

Sd: This setting will provide a mid-range capacity. Less salt is used than the HC (High Capacity), setting. More water between recharges is provided than when the HE (High Efficiency) setting is used. Use this setting if the conditioner is running out of capacity in HE setting. This setting is also used if the HC setting is providing too much capacity. Use this setting if usage or water hardness falls between the HC and HE examples.

HE: This setting minimizes salt used for a recharge (uses the least amount of salt) and provides the least amount of water between recharges. This setting can be used if you have low water hardness or low water usage.

INITIAL START UP INSTRUCTIONS



Three salt consumption mode

According to the table below on water hardness and a water cycle yield, you can choose the salt consumption mode.

| PWCE16P12 | | | | PWCE35P12 | | | | PWCE54P12 | | | |
|----------------------|----------------------------|-------|-------|----------------------|----------------------------|-------|-------|----------------------|----------------------------|-------|-------|
| Entry Hardness (ppm) | Water yield/ per cycle (T) | | | Entry Hardness (ppm) | Water yield/ per cycle (T) | | | Entry Hardness (ppm) | Water yield/ per cycle (T) | | |
| | Mode | | | | Mode | | | | Mode | | |
| | HE | SD | HC | | HE | SD | HC | | HE | SD | HC |
| 50 | 8.00 | 16.00 | 20.00 | 50 | 22.00 | 38.00 | 52.00 | 50 | 30.00 | 54.00 | 72.00 |
| 100 | 4.00 | 8.00 | 10.00 | 100 | 11.00 | 19.00 | 26.00 | 100 | 15.00 | 27.00 | 36.00 |
| 150 | 2.67 | 5.33 | 6.67 | 150 | 7.33 | 12.67 | 17.33 | 150 | 10.00 | 18.00 | 24.00 |
| 200 | 2.00 | 4.00 | 5.00 | 200 | 5.50 | 9.50 | 13.00 | 200 | 7.50 | 13.50 | 18.00 |
| 250 | 1.60 | 3.20 | 4.00 | 250 | 4.40 | 7.60 | 10.40 | 250 | 6.00 | 10.80 | 14.40 |
| 300 | 1.33 | 2.67 | 3.33 | 300 | 3.67 | 6.33 | 8.67 | 300 | 5.00 | 9.00 | 12.00 |
| 350 | 1.14 | 2.29 | 2.86 | 350 | 3.14 | 5.43 | 7.43 | 350 | 4.29 | 7.71 | 10.29 |
| 400 | 1.00 | 2.00 | 2.50 | 400 | 2.75 | 4.75 | 6.50 | 400 | 3.75 | 6.75 | 9.00 |

Note: The above data is based on testing under standard conditions. It would actually exist certain deviation, due to environmental and other factors.

INITIAL START UP INSTRUCTIONS

Enter Water Hardness

The controller starts (by default) at a hardness of 250 ppm. Check the water for actual hardness. Press the Water Hardness button to display the current settings. To change the settings press the button again within 5 seconds. To rapidly increase the settings push and hold the 'Water Hardness' button. Release the button and the setting will be saved in 5 seconds. A too high hardness setting will cause the system to recharge more often and use more salt and water than what is needed to soften the water. A hardness setting too low will cause the system to recharge less often. The system may pass hard water shortly before it recharges.



Programming complete.

The controller will begin normal operation if no button is pushed for 5 seconds. During normal operation (Service mode) the display will show the current time of the day with the 'colon' (double dots) blinking. This will alternate with a display of the quantity remaining to be treated before recharge.

Manually Initiating the Cleaning Cycle

Delayed Cleaning Cycle: Press and release to program a delayed cleaning cycle. The system will regenerate at the next cleaning cycle time (2:00 AM). Repeat procedure to disable the scheduled cleaning cycle. The display indicator dot blinks when a delayed cleaning cycle is scheduled. : Press and release the 'Regenerate' button again, to stop the scheduled delayed cleaning cycle

Immediate Cleaning Cycle: Press and hold for three seconds to initiate an immediate cleaning cycle. Th control cycles to the backwash cycle step . The control will proceed through a complete cleaning cycle. A cascading symbol (- -) will be displayed when the cycle is complete.

To Advance Recharge

- Simultaneously press 'Time of the Day' and 'Recharge' to advance to the next cycle. An hourglass will display while cam is advancing. When cam reaches the next cycle, 'Time Remaining' will be displayed.
- Repeat press 'Time of Day' and 'Recharge' to advance through each cycle.
- Simultaneously press and hold for three seconds during any cleaning cycle step. The control will skip the remaining cycle steps and return to service position. The 'time of day' will be displayed when the control reaches the service position.

NOTE: If a button is not pushed for five seconds, the controller returns to normal operation mode. Pushing the recharge button immediately returns the controller to normal operation.

INITIAL START UP INSTRUCTIONS

After you have performed the previous initial power-up steps, you will need to place the softener into operation. Follow these steps carefully

- add 4-5 litres of clean water in the salt tank.
- If the inlet water valve is opened too rapidly or too fast, media may be lost out of the tank into the valve or the plumbing. In the 1/4 open position; you should hear the air slowly escaping from the valve drain line.
- Once the test finishes the system can be used after adding NaCl. (only for SFT salt tank).

NOTES

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Dotted lines for note-taking.

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A series of horizontal dotted lines for taking notes.

IMPORTANT

Please attach your sales invoice/docket here as proof of purchase should warranty service be required.
Please do not return warranty form to Pentair Australia - Retain for your records.

Purchased from :.....
Purchase date :..... Serial No :..... Model No :.....



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