

**SCALEMASTER<sup>®</sup>**  
**WATER SOFTENERS**

*Softline* 100

*Softline* 200

*Softline* 100t

*Softline* 200t

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## Introduction

Congratulations on your excellent choice of a Scalemaster Water Softener.

Please take the time to read this Manual. It will tell you in simple terms how to install and commission your new Scalemaster Water Softener to begin enjoying the benefits of softened water.

### Before You Start

- Before starting installation, inspect the Water Softener and report any shipping damage to the supplier immediately. Make sure you have all of the necessary tools to hand before starting the installation.
- Follow all applicable Plumbing and Electrical regulations when installing the Water Softener. If in doubt, refer to the WRAS Information and Guidance note at: [www.wras.co.uk/PDF\\_Files/ign9-07-01.pdf](http://www.wras.co.uk/PDF_Files/ign9-07-01.pdf)
- This Water Softener is not intended for the treatment of water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the Water Softener and it is to be used *only* for potable water.
- Use caution when installing soldered metal piping near to the Water Softener. Heat can adversely affect the plastic control or bypass valve system. Be sure all soldered pipes are fully cooled before attaching plastic plumbing fittings.
- Take care not to strip the threads when tightening plastic pipe fittings. PTFE tape may be used on connections that do not use an 'O'-ring seal. Do not allow pipe jointing compound or sealant to come into contact with any plastic parts.
- There should be a minimum run of at least 3 metres of pipe between a softener and a water heater to prevent the possibility of hot water entering the softener unit.
- Use only the power transformer supplied with your Water Softener unit.
- The mains power adapter supplied is double-insulated and does not require earthing. Earth bonding should be applied across metal inlet and outlet pipework of the Water Softener to maintain earth continuity.
- Observe drain line requirements: The drain line must be a minimum of 12.5mm diameter. The unit should be above and not more than 6 metres from a drain.
- Do not support the weight of the Water Softener on the control valve connections or plumbing.
- Protect the softener, softener drain and all other components from the effects of frost. Evidence of damage due to freezing will invalidate your Water Softener warranty.
- Keep the unit in the upright position. Do not turn upside down or drop. Turning the vessel upside down or laying the vessel on it's side can cause treatment media to enter the valve.

Before installing your Scalemaster Water Softener please make a note of your mains water total hardness. This can be established with one of the Water Hardness Test Strips supplied with your softener. If you are unsure after testing you can contact your local Water Authority or enquire at the Scalemaster Sales office with your postcode.

TOTAL WATER HARDNESS mg/l (ppm)

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DATE SOFTENER INSTALLED

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We suggest you keep this manual for future reference.

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## Installation

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It is recommended that your Water Softener is installed by a professional plumber. This installation guide is written with the professional plumber in mind and assumes that this person has a working knowledge of hydraulic water softeners and domestic plumbing systems. Any electrical work required should be carried out by a fully qualified electrician.

### Positioning the Water Softener.

- Measure your Water Softener and the space where it will be installed. Remember to allow extra space for connecting pipework and access for future servicing and topping up of salt.
- Keep the length of the incoming main and drainage pipework to a minimum. 2 metres is usually more than adequate but this can be longer in circumstances where the water pressure allows.
- The weight of a Water Softener is greatly increased when fully operational and filled with salt and this must be taken into account when choosing where to site the softener.
- Your Scalemaster Water Softener is designed to operate with an incoming water pressure of between 1.0 bar and 8 bar. If your water supply is likely to fall outside these parameters we recommend that a booster pump or pressure-reducing valve should be fitted accordingly.

Do not install your Water Softener next to a boiler or other heat source or in an airing cupboard where the ambient temperature is likely to exceed 40°C

### Water Line and Bypass Connections

- A bypass loop should be installed on all Scalemaster 100 & 200 Water Softeners. The bypass valve loop isolates the Water Softener from the water system and provides unsoftened water to the water system during routine maintenance and servicing procedures.

**IF YOU ARE CONSIDERING INSTALLING YOUR WATER SOFTENER IN A LOFT, THE FOLLOWING INSTRUCTIONS SHOULD BE STRICTLY ADHERED TO:**

### Loft Installation

- The Water Softener may be installed in a loft or roof cavity but must be located within a safety bund tank of not less than 100 litre capacity. A suitable tank would be a plastic roof storage tank with an overflow pipe of not less than 22mm diameter. This tank should also be mounted on a board strong enough to spread the weight over a load-bearing wall/joists.

## Drain Line Connection

- The unit should be higher than, and not more than 6 metres from, the drain. Use an appropriate adapter fitting to connect 1/2" (12.5mm) plastic tubing to the drain hose connection of the control valve.
- The drain hose may be elevated up to 1.8 meters providing the run does not exceed 4.6 meters and water pressure at the softener is not less than 2.76 bar.
- Where the drain hose is elevated but empties into a drain below the level of the control valve, form an 18cm loop at the far end of the hose so that the bottom of the loop is level with the drain hose connection. This will provide an adequate siphon tap.
- Where the drain empties into an overhead sewer line, a sink-type U-bend trap must be used.
- Secure the end of the drain hose to prevent it from moving.

## Drinking Water

- When fitting your Water Softener, allowance should be made for at least one drinking water tap that is not fed by the Water Softener. Where practical this should be at the kitchen sink but a Utility Room or other suitable alternative will suffice.
- It is recommended that people on a low sodium diet should not drink artificially softened water. Water used for mixing infant powder for babies must only be taken from unsoftened water as softened water contains an increased level of sodium which will not be accounted for in the infant formula.

## Brine Line Connections

Check the connections taking care not to over-tighten. Be sure that the regeneration line is secure and free from air leaks.

## Electrical Connection

- For added safety the Scalemaster 100/200 series control operates on low voltage via a plug in transformer.

*Use only the transformer supplied with the Softener.*

**ANY ELECTRICAL WORK REQUIRED TO INSTALL A MAINS POWER SUPPLY FOR THE SOFTENER SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED ELECTRICIAN.**

## Controls: Layout and Operation

- **Large LED Display:** The 2 digit LED readout is highly visible for easy reading.
- **Easy 3-Step Programming:** Only 3 buttons are required to fully control the softener.
- **Camshaft Indicator:** A column of windows located on the left of the control provides a visual indicator of the camshaft position.
- **Service Position Indicator:** Is lit to indicate normal operation
- **Manual Regeneration Button:** Initiates either a delayed regeneration or immediate regeneration depending upon long or short pressing.
- **Flow Indicator:** The decimal point/flow indicator blinks on and off when water flow turns the meter.
- **Power Loss Memory Retention:** The controller features battery-free Time of Day retention during loss of power. The time will remain in memory for 6 to 24 hours depending on the installation. If the power source for the memory becomes exhausted, the Time of Day will reset to '0' immediately after power is resumed. The Time of Day must be reset to ensure time of regeneration occurs at 02.00. **NOTE: All other programmed parameters are stored in the flash memory and are retained during power outages. Flash memory retention is several years.**

### Valve Layout (Front)

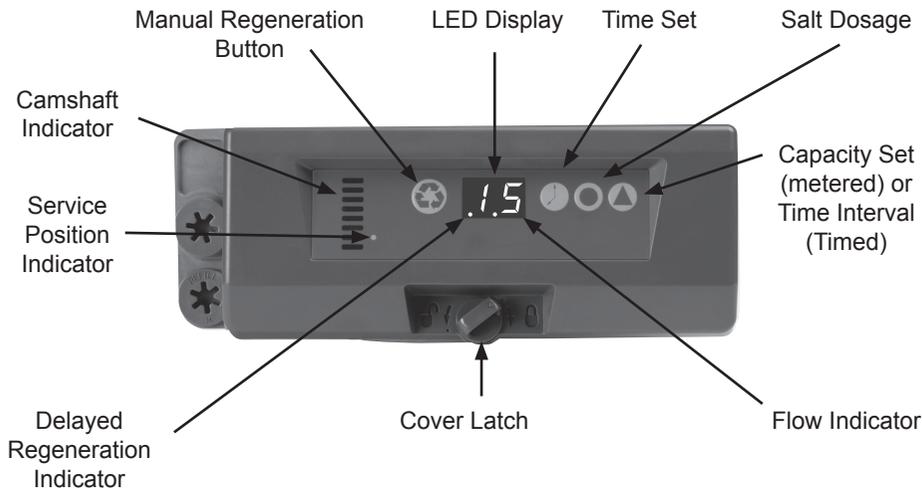


Fig. 1

### Valve Layout (Back)

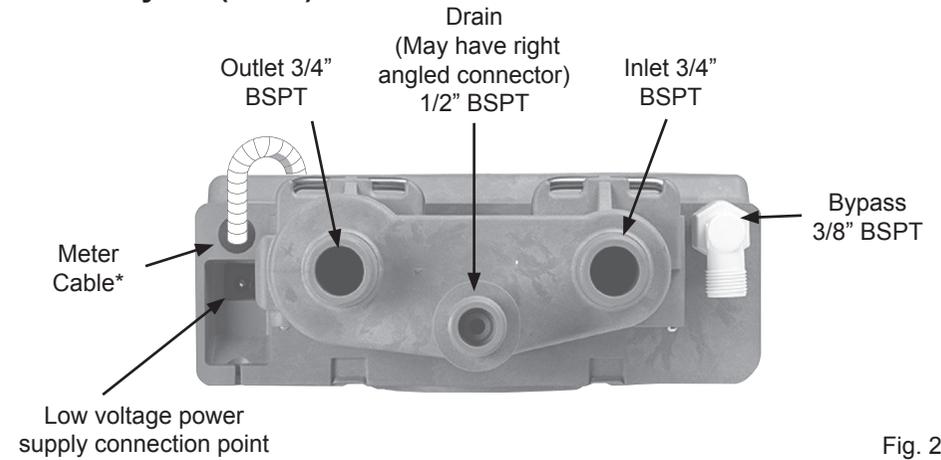


Fig. 2

\* 100 & 200 (metered models) will have a cable here. Timer will have no cable.

### Typical Softener Installation

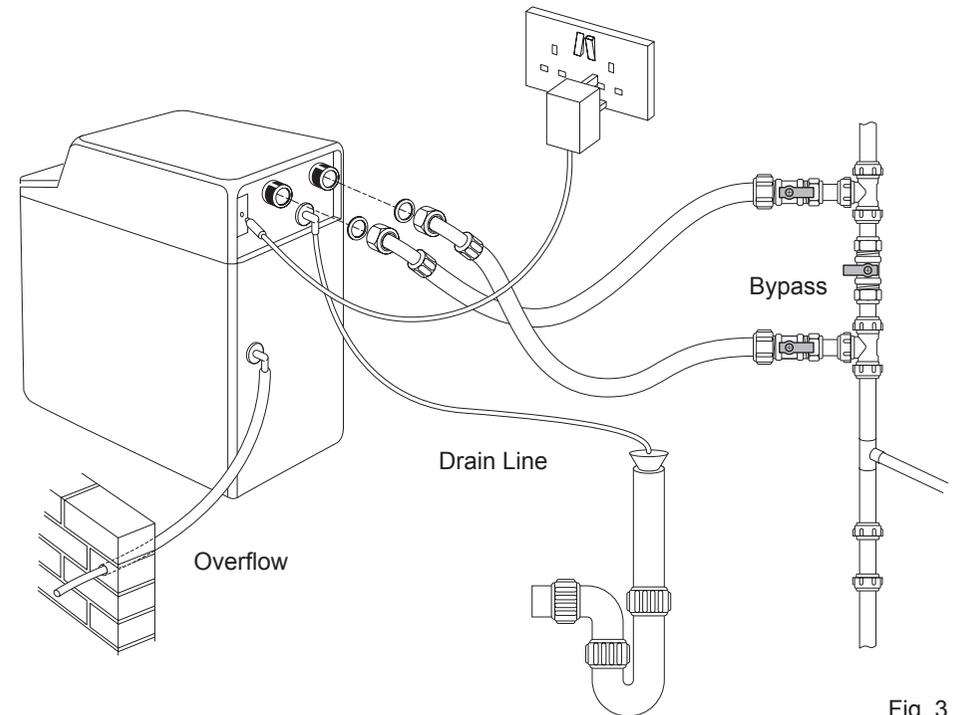


Fig. 3

## Easy 3 - Step Programming

### STEP 1 (Metered & Timed)

**Time of Day:** Press  until desired hour appears (see Fig 4). Release.

Note: The elapsed minutes will reset to zero when the hours are changed.



Fig. 4

### STEP 2 (Metered & Timed)

**Salt Dosage:** Dosage is already pre-set before leaving the factory. Press  to check the correct setting (see Fig 5). If you have a 10 litre unit (100 or 100t) the setting will be 1.5 if you have a 15 litre unit (200 or 200t) the setting will be 2.2.



Fig. 5

### STEP 3 (Metered & Timed)

Consult Table A for cubic capacity settings (Metered) or Table B for time interval settings (Timed) to select the appropriate setting. Press  until the desired setting appears (see Fig 6).



Fig. 6

**Programming is now complete**

TABLE A (100 METERED)

	Softline 100 Meter						
Hardness	200	250	300	350	400	450	500
Cu Meters Capacity	2.5	2.0	1.7	1.4	1.3	1.1	1.0

TABLE A (200 METERED)

	Softline 200 Meter						
Hardness	200	250	300	350	400	450	500
Cu Meters Capacity	3.8	3.0	2.5	2.1	1.9	1.7	1.5

TABLE B (100 TIMED)

	Regeneration interval calculator - Softline 100t				
	Number of people in house				
Hardness (ppm)	2	3	4	5	6
200	8	6	4	3	3
250	7	4	3	3	2
300	6	4	3	2	2
350	5	3	2	2	2
400	4	3	2	2	2
450	4	2	2	1	1
500	3	2	2	1	1

TABLE B (200 TIMED)

	Regeneration interval calculator - Softline 200t				
Hardness (ppm)	200	300	400	500	600
200	13	8	6	5	4
250	10	7	5	4	3
300	8	6	4	3	3
350	7	5	4	3	2
400	6	4	3	3	2
450	6	4	3	2	2
500	5	3	3	2	2

Larger softener unit is recommended

NOTE: During programming, if a button is not pushed for 5 seconds, the control returns to the normal operation mode and displays the time of Day.

## Commissioning: Manual Regeneration and Start-Up



Fig. 7

**Delayed Regeneration:** Press and release  to program a delayed regeneration (Fig 7). The system will regenerate at the next Time of Regeneration (02.00am) Repeat procedure to disable the Delayed Regeneration. Regeneration dot blinks when delayed regeneration is on.

**Immediate Regeneration:** Press and hold  for 3 seconds to initiate an immediate regeneration. The control will display a cascading symbol (- -) as it cycles to backwash. The control will proceed through a complete regeneration..

**Quick Cycling:** Press and hold  for 3 seconds to initiate an immediate regeneration. The control will cycle to the backwash cycle.

1. Press and release the  to display "C 1" (Fig 8)
2. Simultaneously press then release  and  to move the control to the next cycle.
3. Press and release the  to display "C 2"
4. Repeat steps 2 and 3 to cycle through each position.

**Quick Cycle to Service Position:** Simultaneously press  and  and hold for 3 seconds during any regeneration cycle. The control will skip the remaining regeneration cycles and return to the service position. The Time of Day will be displayed when the control reaches the service position.

### Start-Up

The conditioner will now need to be placed into operation. Please review Quick Cycling before attempting start-up.

Do not put salt into the brine tank.

1. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
2. Press and hold the  button on the controller for 3 seconds. This will initiate a manual regeneration, and cycle to the backwash position.

3. Filling the vessel with water.
  - A. With the Softener in backwash, open the water supply valve very slowly to approximately  $\frac{1}{4}$  open position. Water will begin to enter the vessel. Air will begin to be purged to drain as the vessel fills with water.
  - B. When all of the air has been purged from the vessel (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the vessel.
  - C. Allow water to run to drain until the water runs clear from the drain line. This purges any debris from the media bed within the vessel.
  - D. Turn off the water supply and let the system stand for about five minutes to allow any trapped air to escape from the vessel.
4. Adding water to the brine tank.
  - A. Pour 6 litres of water into the brine tank.
5. Checking Brine Draw.
  - A. From the service position press the  button to initiate a manual regeneration and allow the control to move to the backwash position (C1). (To display the C number, quickly press the regeneration button after the cascading lines have started)
  - B. As the lines start to cascade slowly turn on the water to the softener and allow the air to purge from the softener (C1 lasts for 1 minute).
  - C. When the control moves to C2 check that the water is being drawn from the brine tank
  - D. If the water level does not recede, check all brine line connections
6. If the water level is receding from the brine tank press the  and  buttons for 3 seconds to cycle the control back to the service position.
7. Turn on a tap plumbed after the Water Softener. Run the tap until the water runs clear.
8. Charge the brine tank with salt (tablets or granular) specifically formulated for Water Softeners.

**Congratulations your Water Softener is now fully operational.**

SPECIFICATION	SOFTLINE 100	SOFTLINE 100t	SOFTLINE 200	SOFTLINE 200t
Height	445mm	445mm	600mm	600mm
Depth	460mm	460mm	460mm	460mm
Depth Including Connectors	460mm	460mm	460mm	460mm
Width	275mm	275mm	270mm	270mm
Resin Volume	10 litre	10 litre	15 litre	15 litre
Salt used per regeneration cycle	1500 grams	1500 grams	2200 grams	2200 grams
Water used per regeneration cycle	53 litre	53 litre	59 litre	59 litre
Maximum working pressure	8.0 bar	8.0 bar	8.0 bar	8.0 bar
Minimum working pressure	1.5 bar	1.5 bar	1.5 bar	1.5 bar
Maximum ambient operating temperature (°C)	45°	45°	45°	45°
Maximum water temperature (°C)	38°	38°	38°	38°
Electrical Supply	240v 50Hz	240v 50Hz	240v 50Hz	240v 50Hz
Maximum (peak) flow-rate	42 litres per minute			
Maximum flow-rate at 1 bar pressure drop	33 litres per minute			
Inlet & outlet connections	3/4" male	3/4" male	3/4" male	3/4" male
Drain & overflow connections	1/2"	1/2"	1/2"	1/2"
Regeneration time	42 mins	42 mins	46 mins	46 mins
Maximum softened water capacity at 200ppm. (Water efficiency <sup>a</sup> )	2500 litres 2.1%	2500 litres 2.1%	3750 litres 1.6%	3750 litres 1.6%
Maximum softened water capacity at 300ppm. (Water efficiency <sup>a</sup> )	1667 litres 3.2%	1667 litres 3.2%	2500 litres 2.4%	2500 litres 2.4%
Sizing Recommendations (Based on standard household use <sup>a</sup> )	Up to 5 persons	Up to 5 persons	Up to 7 persons	Up to 7 persons
Carbon Neutral	YES	YES	YES	YES
Scalemaster Product Code	900216	900209	900230	900223

\*Assumed average domestic use of 150 litres of water per person per day

## SCALEMASTER

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