

STREAMLINE

SAFELY CLEANING AT HEIGHT

SMARTANK®

INSTRUCTION MANUAL

SMARTANK®

CODES

SMT400

SMT650

SMT1000

THE KIT INCLUDES

1 x SMARTANK®



Checked By

Date Checked

1. Why STREAMLINE®

2. Safety Information

- 2.1 STREAMLINE® Warranty
- 2.2 Safety Precautions
- 2.3 Intended Use
- 2.4 Cleaning Solution

3. System Overview

4. Assembly and how to set up

- 4.1 Assembly of the SMARTANK®
- 4.2 Filling of the SMARTANK®
- 4.3 How to dispense the pure water

5. Application and how to use

6. Maintenance and storage

- 6.1 Pre-Filters
- 6.2 Reverse Osmosis Membrane
- 6.3 Deionising Filter
- 6.4 The Shurflo Pump

7. Technical information

8. Declaration of conformity



1. WHY STREAMLINE

FLEXIBILITY

- STREAMLINE® systems can be built according to customers' exact requirements
- For non-standard systems, the user's needs or specifications are listened to and turned into reality.

QUALITY

- Whilst price is important, quality is remembered long after price is forgotten
- We insist on sourcing brand name products from around the world, only of a reputable quality, and bring them together under the STREAMLINE® name
- All STREAMLINE® products carry a full one year's warranty, according to the manufacturers' standard terms and conditions of sale.

SERVICE

- We have an in-house technical helpline able to answer most of your questions relating to the capabilities and functionalities of all STREAMLINE® products
- If we get it wrong, we will put it right. If you are sent a wrong item, we will immediately attend to sending you the correct item and arrange a collection of the wrong item without any quibbles
- STREAMLINE® is backed by a comprehensive range with massive stocks providing you with a 'one stop shop' for all your requirements.

2. Safety Information

2.1 STREAMLINE® WARRANTY

The warranty on Machines and Equipment is for 1 year from RECORDED DATE OF PURCHASE.

THIS WARRANTY EXCLUDES NORMAL MAINTENANCE ITEMS, including but not limited to HOSES, FILTERS, O-RINGS, DIAPHRAGMS, VALVES, GASKETS, CARBON BRUSHES and damage to motors and other components as a result of failure to replace normal maintenance items. THIS LIST IS NOT EXHAUSTIVE.

If VARITECH® receives notice of such defects during the warranty period, STREAMLINE® will either, at its opinion, repair or replace components which prove to be defective.

Replacement parts will only be supplied under warranty, upon the inspection and approval of the defective parts by STREAMLINE®.

Should it be necessary to supply replacement parts before the opportunity to inspect, these will be charged at current prices and credit will only be issued upon subsequent inspection and warranty approval by STREAMLINE®.

The customer is responsible for the cost of return of the defective part. If warranty is approved, STREAMLINE® will pay for the cost of the repaired or replacement part.

This warranty excludes the following conditions and circumstances which are at

the discretion of STREAMLINE®:
Wear and tear, misuse, abuse improper maintenance, frost damage, the use of chemicals other than those supplied or approved by STREAMLINE®, improper installation or repair, unauthorised modification, incidental or consequential costs, loss or damage, service, labour or third party charges, the cost of returning defective parts to STREAMLINE®.

This warranty constitutes the exclusive remedy of any purchaser of a STREAMLINE® unit and is in lieu of all other warranties, express or implied, including without limitation any implied warranty of merchantability or fitness for use, to the fullest extent permitted by law. In no event shall any implied warranty of merchantability or fitness for use exceed the term of the applicable warranty stated above and STREAMLINE® shall have no other obligation or liability.

These rights cannot be transferred to a third party.



2.2 SAFETY PRECAUTIONS

- It is always recommended to professionally install the SMARTANK® with the FITOUT-SYSTEM code from STREAMLINE®
- Always ensure the vehicle has a suitable payload for the SMARTANK® to be installed
- The SMARTANK® must only be used by a trained person authorised to do so
- This instruction booklet must be made available for consultation by the user
- Do not use the SMARTANK® with telescopic poles in the vicinity of power lines, junction boxes, power sockets
- Do not attempt to modify the SMARTANK® as this could cause a safety hazard or system breakdown
- Never use faulty components or if there is visible damage to the pole or fittings - replace them immediately with original spare parts
- Only use spare parts approved by STREAMLINE® the manufacture
- Appropriate clothing and safety shoes should be worn when operating the telescopic pole

2.3 INTENDED USE

The innovative SMARTANK® is a vehicle mounted flat tank system designed to produce pure 000ppm water, through Reverse Osmosis and Deionising filtration, suitable for spot free cleaning.

Baffled to restrict water movement in transit and with a height of less than 450mm these tanks offer safe, low centre of gravity van systems, while taking up minimal van space. By installing an optional secondary floor, the van load area can still be utilised for a multitude of purposes and the transport of other needed equipment.

With the equipment cabinet mounted at the front of the tank, at the door opening, operation has never been easier... pumps, controllers and filters easily accessible, via the opening of the cabinet, maintenance and filter changes are simply and quickly achieved.

2.4 CLEANING SOLUTION

Pure water is harmless to the operator, and will not damage any surfaces.

Thank you for your purchase of the STREAMLINE® SMARTANK® System. This manual will help you get set up and begin using your system right and safe away.

STREAMLINE® disclaims all liability for damage or injury as a result of improper or unreasonable use or failure to follow operating instructions of the SMARTANK®.

OUTSIDE THE SMARTANK®.



STREAMLINE® digital flow controller 1

Booster Pump Pressure

Waste water regulator

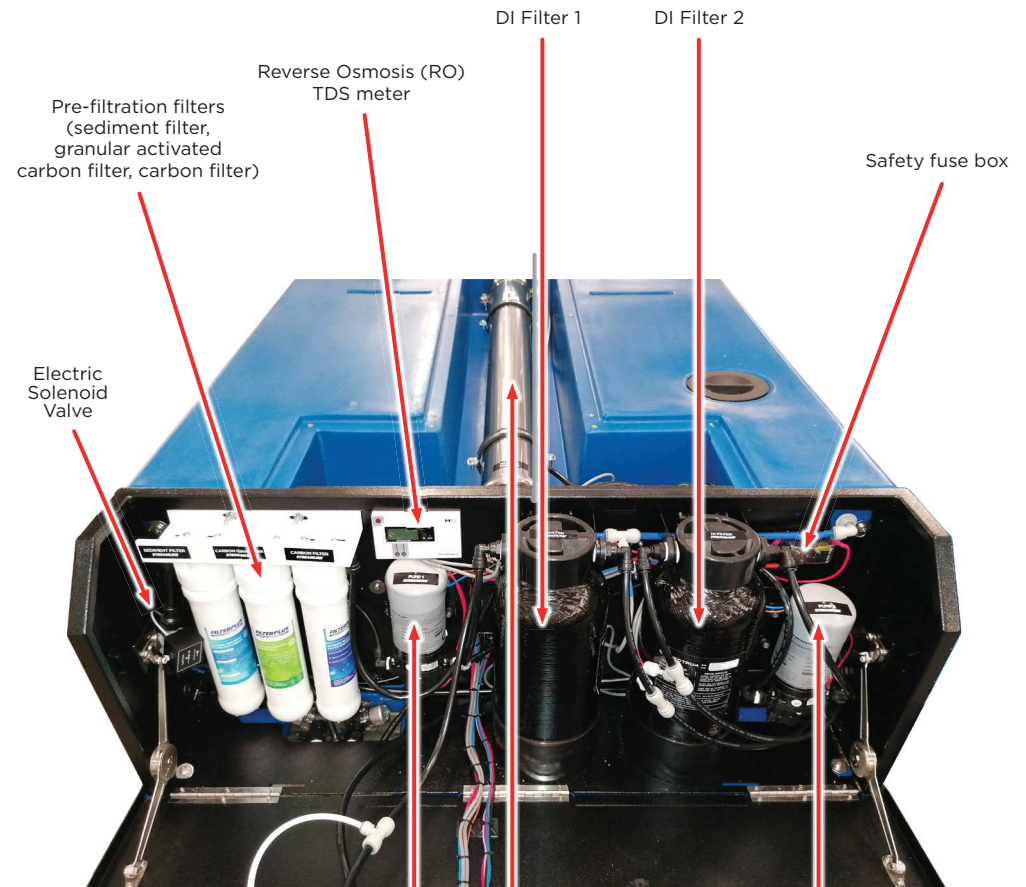
Final deionising operator TDS meter

Booster Pump Switch

Filling electric solenoid valve on/off switch

STREAMLINE® digital flow controller 2

INSIDE THE SMARTANK®.



Reverse Osmosis (RO) membrane filter

Shurflo 100psi pump 1

Shurflo 100psi pump 2

3. SYSTEM OVERVIEW

The innovative SMARTANK® is a vehicle mounted flat tank system designed to produce pure 000ppm water, through Reverse Osmosis and Deionising filtration, suitable for spot free cleaning.

THE KIT INCLUDES

- 400ltr, 650ltr, 1000ltr water tank
- Tank lid
- Tank sight gauge
- Cabinet locking nuts
- Shurflo 100psi pump 1
- Shurflo 100psi pump 2
- STREAMLINE® digital flow controller 1
- STREAMLINE® digital flow controller 2
- Reverse Osmosis (RO) booster pump pressure gauge
- Reverse Osmosis (RO) booster pump on/off switch
- Filling electric solenoid valve on/off switch
- Final deionising operator TDS meter
- Waste water regulator
- Electric solenoid valve
- Pre-filtration filters (sediment filter, granular activated carbon filter, carbon filter)
- Reverse Osmosis (RO) membrane filter
- Reverse Osmosis (RO) TDS meter
- Safety fuse box
- 12v GEL 110amp/hr battery
- Split charge relay system connected to vehicle battery

4. ASSEMBLY AND HOW TO SET UP

4.1 ASSEMBLY OF THE SMARTANK SYSTEM

- If you have purchased the SMARTANK® completed and installed in a vehicle, please move on to 4.2 Filling of the SMARTANK®
- If you have purchased the SMARTANK® to install yourself, please refer to FITOUT-SYSTEM instructions manual

4.2 FILLING OF THE SMARTANK SYSTEM

- Ensure that the 'waste water regulator valve' for the Reverse Osmosis filter is fully open (turn anti-clockwise).
- Switch the solenoid valve 'on' with the solenoid switch to fill. The controller will monitor the level switch in the water tank and fill the tank by energising the solenoid filling valve. When the water level rises and operates the level switch, the controller will de-energise the solenoid filling valve and stop the filling process automatically



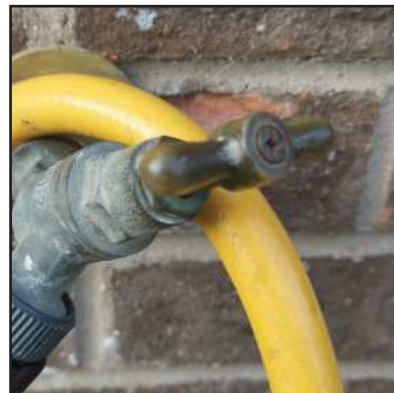
- Connect the black fill hose from the mains water supply to the water 'inlet' coupling



- Connect the red waste hose from the 'waste' water coupling and direct it to the nearest drain



- Switch on the mains water, and allow all air to pass through the filter system



- Adjust the 'waste water regulator valve', by turning it clockwise, until a 50:50 ratio of pure water to tank and waste water to drain is achieved

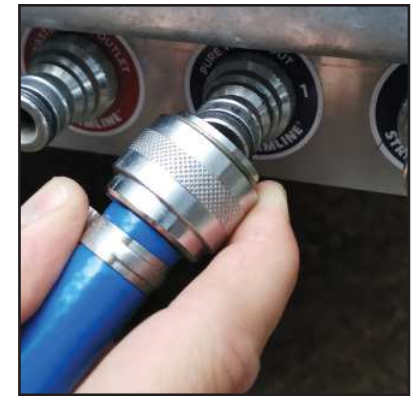


- Once the tank is full, the solenoid switch will automatically stop and shut the water off at the ports. Disconnect the hose couplings.



4.3 HOW TO DISPENSE THE PURE WATER

- Connect your 'blue' link hose supplied to the pure water outlets marked 'Pure 1 / Pure 2' on the under-bumper hose port and to the hose reel / telescopic pole. If you have a static hose reel mounted in the vehicle, it will already be connected, ready for use.



- Switch the flow controller on by pressing the  button. You can adjust the water flow rate by increasing the number until a desired flow rate is achieved. The average flow rate is usually set between 40-50 on the STREAMLINE® controllers. The pump MUST run continuously. If the pump is running intermittently whilst water is flowing to the telescopic pole, decrease the speed on the flow controller by pressing the  button until the pump runs continuously.
- Different cleaning applications may require different water flow rates, i.e. large glass areas with lots of rinsing will need more water than a small window.
- When you have completed the cleaning task, switch the pump off by pressing and holding the  button, before disconnecting the hoses from the poles and hose reels. The system must not be stored under pressure as this will invalidate the warranty.



***Further controller details are found on the separate controller instructions.**

5. Application and how to use

Before using the SMARTANK® systems, please ensure STREAMLINE® safety cones are protecting yourself and others around you.

- Connect your 'blue' link hose supplied to the pure water outlets marked 'Pure 1 / Pure 2' on the under-bumper hose port and to the hose reel / telescopic pole. If you have a static hose reel mounted in the vehicle, it will already be connected, ready for use.
- Switch the flow controller on by pressing the  button. You can adjust the water flow rate by increasing the number until a desired flow rate is achieved. The average flow rate is usually set between 40-50 on the STREAMLINE® controllers. The pump MUST run continuously. If the pump is running intermittently whilst water is flowing to the telescopic pole, decrease the speed on the flow controller by pressing the  button until the pump runs continuously.
- Different cleaning applications may require different water flow rates, i.e. large glass areas with lots of rinsing will need more water than a small window.
- When you have completed the cleaning task, switch the pump off by pressing and holding the  button, before disconnecting the hoses from the poles and hose reels. The system must not be stored under pressure as this will invalidate the warranty.

Additional information

When cleaning windows, remember to pay special attention to the frames, especially if it is the first time this method of window cleaning is being used.

The most important part of the cleaning process is to rinse the glass thoroughly, after the window has been cleaned. To do this, lift the brush away from the glass and move the head from side to side working from top to bottom motion, allowing the water remove all particles from the glass.

If you are cleaning windows on a warm day, the rinsing procedure must be done meticulously, as warm, direct sunlight can cause spotting due to insufficient rinsing.

6. Maintenance and storage

This system relies on a series of filters to produce pure 000ppm water. To ensure that your SMARTANK® filters operate efficiently, the filters will need to be changed in accord with your water harness.

Open the cabinet by turning the two latches on either side of the front cover, using the key supplied. Lower the front cover carefully ensuring that the external controls are not damaged.

The SMARTANK™ is fitted with two inline TDS meters.

- 1) The first TDS meter is located inside the SMARTANK® cabinet, which measures the incoming mains water (in) along with the Reverse Osmosis filtered water (out). If the Reverse Osmosis (out) reading is above 40ppm, a replacement RO membrane is needed.



- 2) The second TDS meter is mounted on the front of the SMARTANK® cabinet, which monitors the water purity of both DI filters (operator 1/operator 2). If the final water reading is above 5ppm, a replacement DI filter is needed.



6.1 PREFILTERS

The prefilter set includes 1x Sediment Filter, 1x Granular Activated Carbon Filter, and 1x Carbon Block Filter. It is recommended that the prefilter sets are replaced at least every 3x months / 25,000ltrs.

The prefilter cartridges are quick release, and can be replaced by simply unscrewing the CLK cartridge (twist to the left) and replacing them with new CLK cartridges.

PRODUCT CODE: KIT02310-CLK



ENGLISH

6.2 REVERSE OSMOSIS (RO) MEMBRANE

The RO membrane filter is hidden below the centre cover in the water tank. The RO requires a backwash regularly which can be completed every time you fill the tank through the 'inlet' coupling.

- 1 Connect the black fill hose from the mains water supply to the water 'inlet' coupling.
- 2 Connect the red waste hose from the 'waste' water coupling and direct it to the nearest drain.
- 3 Open the 'waste water regulator' (anti-clockwise) fully and turn on the mains water supply.
- 4 Allow the water to flush through the RO membrane and exit out the waste hose for approx. 5-10 minutes.
- 5 Turn off the water supply and reset the needle valve the next time the tank requires filling.

It is recommended that the RO membranes are replaced at least every 18x months / 250,000ltrs. To replace the RO membrane filter:

- 1 Ensure the SMARTANK® is switched off and no water filling into the tank
- 2 Remove the inlet, outlet and waste water hose connections from the stainless steel membrane housing
- 3 Release the stainless steel membrane housing from the clamps and remove the used RO membrane filter into general waste
- 4 Reinsert the new RO membrane filter in the housing, ensuring the membrane seal is located on the inlet of the stainless steel membrane housing
- 5 Reassemble the stainless steel membrane housing, and clamp back into position before attaching the inlet, outlet and waste water hose connections

After you have replaced a new RO membrane filter, ensure you complete a backwash before the membrane is put under pressure.

PRODUCT CODE: S-MRO-4040-F



6.3 DEIONISING (DI) FILTRATION DI FILTER

The DI filter is a vessel containing DI resin beads. This final filtration stage polishes the water after the Reverse Osmosis. The DI resin cannot be regenerated and needs replacing should the 'out' TDS reading rise above 006ppm. It is recommend that the DI filter is replaced at least every 3x months / 25,000ltrs.



To replace the DI resin filter:

- 1) Ensure the SMARTANK® is switched off and no water filling into the tank
- 2) Remove the inlet and outlet hose from the filter
- 3) Unscrew the DI filter head and remove both the head and riser carefully
- 4) Release the DI filter from the clamp and empty of the used resin beads into general waste
- 5) Refill the DI filter with new resin beads, ensuring that the filter is filled no more than three quarters
- 6) Reassemble the head and riser, and clamp the filter back into position before attaching the inlet and outlet hose connections

PRODUCT CODE: MB115

6.4 THE SURFLO PUMP

THE PUMP

The pump fitted to the SMARTANK® systems are protected by an inline strainer filter, with a clear top allowing for visual inspection. If any debris accumulates in the strainers, unscrew the top and flush out with clean water.

The pump has a built in pressure switch. When switched on it will pump until it has reached the maximum pressure setting before cutting out. This is a safety feature. However, the pressure switch may burn out if the pump is allowed to run intermittently.

To avoid this happening, make sure that the pump speed is correctly set on the flow controller. The pump must not be stored under pressure as this will invalidate the warranty.

PRODUCT CODE: 8000-946-238



7. Technical information

SMARTANK®	400Ltr	650Ltr	1000Ltr
Dry Weight	65kg	76kg	109kg
Wet Weight	465kg	726kg	1109kg
Length	1120mm	1120mm	1120mm
Width	1580mm	2850mm	2850mm
Max Height	438mm	438mm	438mm

TECHNICAL MESSAGES

- **dE – A dead end has been detected.** The pump has been turned off automatically by the controller, as there is a water stop somewhere in the system.
- **PS – The pressure switch has been activated.** This means the pressure has exceeded the pressure switch rating. Check if there is no water blockage or reduce the pump speed to lower the resistance.
- **Bat (Pump still working) –** Your battery voltage has dropped below 11.5V. Re-charge your battery as soon as possible, before your pump finally stops.
- **Bat (Flashing and pump stopped) –** Your battery voltage has dropped below 11.0V. The pump has been stopped by the controller to prevent possible damage to the battery. Re-charge your battery as soon as possible. If you have a split charge relay fitted to your SMARTANK® system, start your vehicle engine which will then start the charging process.
- **FIL (Flashing) –** The controller is set to a filling mode. The controller will monitor the level switch in the water tank and fill the tank by energising the solenoid filling valve. When the water level rises and operates the level switch, the controller will de-energise the solenoid filling valve and stop the filling process automatically.

ADJUSTING CONTROLLER CALIBRATION

The STREAMLINE® controller can automatically shut down the pump automatically when the pressure reaches 100psi, to protect your pump and pressure switch.

This is known as 'dead-end' and labelled 'dE' on the controller.

The sensitivity can be adjusted and set by the operator, if the controller is turning off too early or too late.

- Turn on the flow controller



- To adjust dead-end detection, press and hold and ^ at the < same time. Wait for 'Cal' to display and flash on the screen.



- When 'Cal' displays on the screen, adjust dead-end detection up with ^ (less sensitive, turns off at higher pressures) or down with v (more sensitive, turns off at a lower pressure).



- Press enter button < to set and save the final calibration



8. Declaration of conformity

EC Declaration of Conformity according to the EMC Directive 2014/30/EU, RoHS Directive 2011/65/EC. The SMARTANK® has been designed and produced by STREAMLINE® in accordance with the above mentioned EC Directives. The technical documents are complete. The complete EC Declaration of Conformity with all standards applied can be requested on the STREAMLINE® Website or directly from STREAMLINE®.



STREAMLINE

SAFELY CLEANING AT HEIGHT

SMARTANK®

INSTR:SMT400-1000

Varitech Systems
Hamilton House, 8 Fairfax Road
Heathfield Industrial
Estate, Newton Abbot
Devon, TQ12 6UD
United Kingdom
Telephone +44 (0) 1626 830 830
Email sales@varitechsystems.co.uk
Visit www.varitechsystems.co.uk