

Rainman Autoflush System Manual



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Introduction

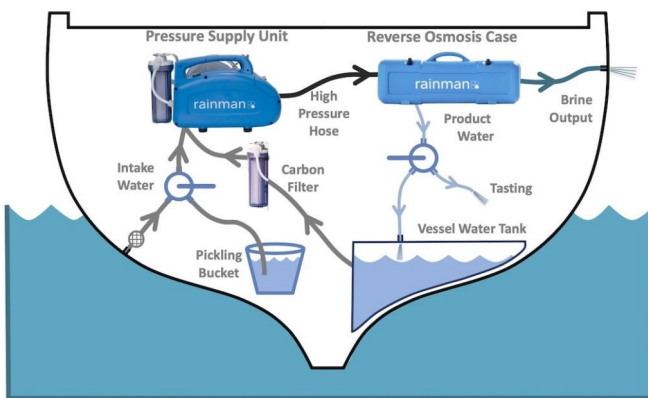
The Rainman autoflush kit is an optional accessory for customers that have installed their Rainman watermaker. It is designed so that owners do not need to pickle their system, but instead pumps fresh water through the watermaker every seven days. This assists in prevention of fouling the reverse osmosis (RO) membranes.

The autoflush kit utilises the boat's main water pump, a Rainman flush timer box, a motorised valve, and an activated carbon filter (neutralises chlorine that may be in your water tank) to force fresh water through your watermaker for several minutes at seven day intervals. It also has capability to manage manually controlled flushes at the user's convenience. The flush timer has a simple one button programming capability for ease of use.

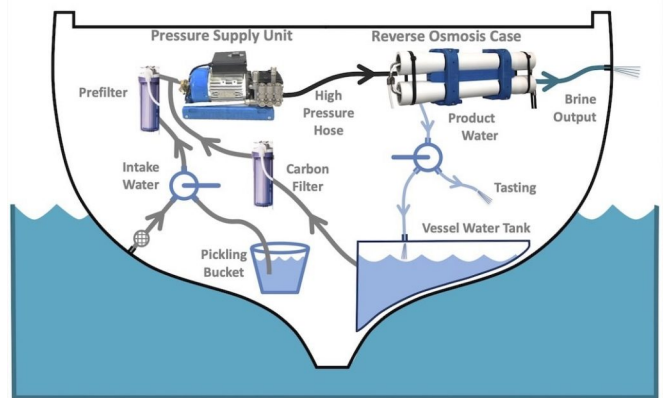
The system is backward compatible with existing Rainman watermakers that have already been installed.

The autoflush kit can be easily installed with either the Rainman portable cased version or the modular systems.

Rainman Case Installed – Autoflush



Rainman Naked Installed – Autoflush



Installation

Included Parts

The photo shows the parts that are included in your Rainman autoflush kit.

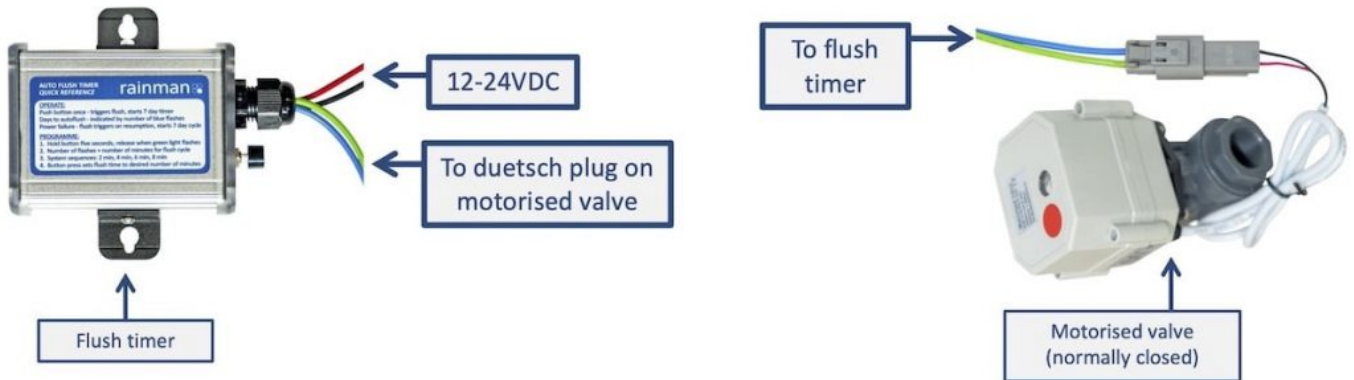
The mounting feet of the timer can be positioned anywhere along the side slot. Relax the retaining screw and slide the foot along the side slots.



Rainman Autoflush Kit - Unassembled Parts

Electrical Wiring

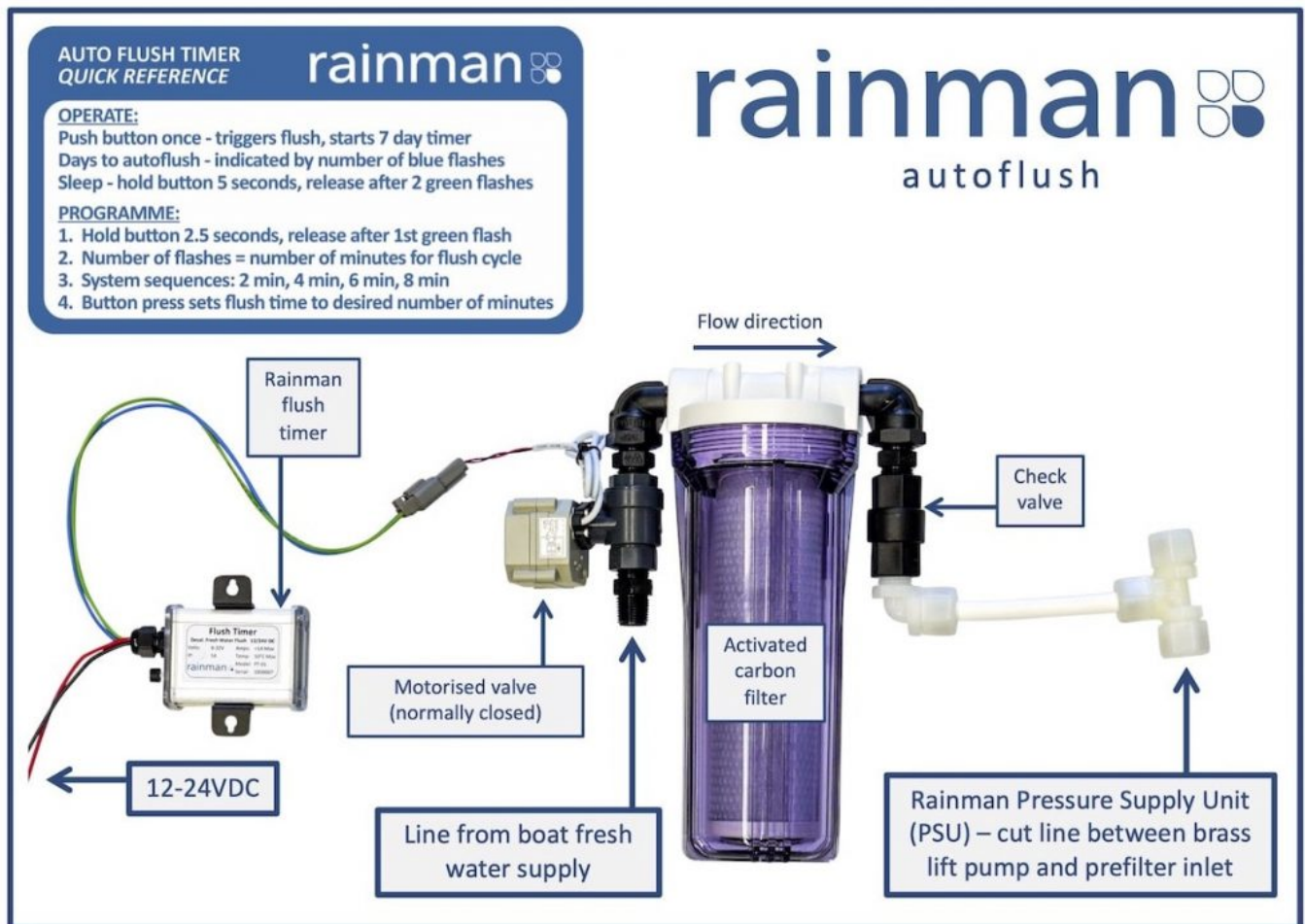
1. Red (+ positive) and black (- negative) wires from the Rainman flush timer box connect to 12V or 24V.
2. Blue and green wire from the Rainman flush timer is fitted to the two pin Deutsch connector.
3. Connect the Deutsch plug into the mating socket fitted to the motorised valve.



Plumbing

The autoflush system utilises the boat's house water pump. The supply pressure should not exceed 3 bar (43 psi) or the lift pump's shaft seal may begin to leak. In such cases, a 20 to 30 PSI pressure regulator should be employed.

1. The inlet side of the motorised valve connects to the fresh water supply.
2. The outlet side of the motorised valve connects to the inlet port of the carbon filter housing.
3. The check valve should be on the outlet side of the carbon filter housing. This is a directional valve and the arrow should be pointing away from the carbon filter housing.
4. The T fitting after the activated carbon filter is to be spliced in to the Rainman pressure supply unit between the brass lift pump and the inlet port of the prefilter housing.
5. The elbows in the diagram are not mandatory and may be omitted if geometry warrants.



Programming

Flush Cycle Duration

The flush timer box is programmable from two minutes to eight minutes, in two minute increments. Eg: 2, 4, 6, or 8 minute flush cycle durations.

Press and hold the button for 2.5 seconds to go into programming mode. While holding the button down, a single green flash will indicate when to release the button. After releasing the button, a few rapid green flashes will indicate you are in flush cycle programming mode. The green LED will then flash twice for 2 minute flush duration, four times for 4 minutes, six times for 6 minutes and eight times for 8 minutes. After the green LED flashes 2, 4, 6, or 8 times, pressing the button selects that particular flush duration. The timer then exits programming mode and the green LED will flash the number of minutes in which the flush timer is set before re-entering countdown mode. At this point, the blue LED flashes according to the number of days remaining in the countdown. It remembers where it was at in the countdown. If you do not select any time while in programming mode, the timer will eventually revert back to countdown timer mode, resuming the most recent flush duration setting.



Example: To set a four minute flush duration

1. Long press the flush timer button for 2.5 seconds. Release after green LED flashes once.
2. The green LED will quickly flicker for one second, then off for one second.
3. The green LED will start its flashing sequence, wait for the four flashes to appear, then press the button.
4. The green LED will again quickly flicker for one second, then off for one second.
5. The flush timer will respond by flashing the green LED four times, then a pause, then flash four times again. This allows the operator to verify the new setting is correct.
6. The Rainman flush timer will now switch back to normal countdown operation, and the seven day countdown resumes where it was prior to programming.
7. To test the new flush duration, press the push button again to initiate a flush cycle. After the flush cycle, the timer will reset to seven days.

Determining how long to set flush duration, consider that you will want approximately 10 litres (~2.5 gallons) of water to be pushed through the system on each flush cycle. The best way to determine this is by measuring the brine discharge during a flush cycle and programme the timer accordingly.

Flush Cycle Countdown

The flush cycle countdown time is designed to be fixed at seven days. This cannot be changed.

Operation

Automatic Flush Cycle

While timer is in countdown mode, a blue LED will flash a count of days remaining before the next flush cycle executes. For example, if there are three days before the next flush cycle, the blue LED will flash three times, pause, then repeat. This informs the user that the flush timer is powered and counting down the seven day period before the next flush cycle.

During the flush cycle, the blue LED will be constantly illuminated.

After the flush cycle completes, the countdown time resets to seven days.



The watermaker pressure control valve should be fully open (anti-clockwise) when the system is not in use. This allows the boat's water pump to easily push water through the Rainman high pressure pump, across the seawater side of the reverse osmosis (RO) membranes, and out the brine waste outlet.

Warning: Avoid running the watermaker when the flush cycle initiates. If the blue LED is showing single flashes, the flush cycle will start within one day. Press the flush timer button to initiate a flush cycle, and then again to cancel it and reset countdown timer to seven days. This ensures the flush cycle will not initiate while making water.

Warning: If leaving your boat for a period of time with the Rainman Autoflush system activated, ensure there is sufficient water in the tank. There is no built in protection in this system if the tank runs dry. If leaving your system for extended periods, Rainman recommends putting the flush timer into "sleep" mode and pickling your system to ensure the tank does not empty.

Manually Triggering Flush Cycle

Press the button quickly during countdown mode to manually trigger a flush cycle. After the cycle completes, the seven day countdown timer resets. The blue LED will be solid during the flush cycle.

Press the button during the flush cycle to terminate the current cycle and reset the countdown timer to seven days.

A good practice is to trigger a flush cycle after you have completed a watermaking session. This will flush your watermaker and set the seven day countdown timer.

Sleep Mode

If you wish to disable the timer, it can be put into sleep mode. *Note: this feature is only included on timer boxes having a red dot on them, from mid-July 2020.*

1. Long press the button for 5 seconds (twice as long as for programming flush time above). At 2.5 seconds, the green LED will flash once, at 5 seconds, it will flash twice. Release the button after it flashes twice.
2. The flush timer is in sleep mode and no LED's will be illuminated or flashing.
3. Restart by pressing the button. A flush cycle executes and the countdown timer is set for seven days.

Activated Carbon Filter

Your boat's water tank may have chlorine in it. The carbon block activated carbon filter exists to neutralise that chlorine, preventing damage to your RO membranes. You should change the filter at six monthly intervals.

Loss of Power

During countdown mode

The motor valve will remain closed. The programmed flush duration remains stored in the timer for when power is resumed.

During flush cycle

The motor valve is open during the flush cycle. If power is lost while the flush cycle is executing, it is undesirable for the motor valve to remain open. The motor valve will automatically close whenever power is lost. *Note: this feature is only included on motor valves having a red dot on them, from mid-July 2020.*

Power resumption

When power has resumed, the timer won't know whether it has been out for a very short or very long period of time. On resumption after a power cut, the blue LED will flash slowly for fifteen seconds, allowing other appliances to start, then execute a flush cycle. After the flush cycle, the countdown timer will reset to seven days.

Quick Reference

A quick reference decal is attached to your timer, showing some of the important features.

AUTO FLUSH TIMER
QUICK REFERENCE

rainman 

OPERATE:
Push button once - triggers flush, starts 7 day timer
Days to autoflush - indicated by number of blue flashes
Sleep - hold button 5 seconds, release after 2 green flashes

PROGRAMME:
1. Hold button 2.5 seconds, release after 1st green flash
2. Number of flashes = number of minutes for flush cycle
3. System sequences: 2 min, 4 min, 6 min, 8 min
4. Button press sets flush time to desired number of minutes