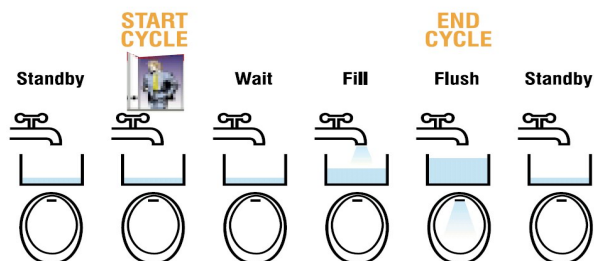


SMARTFLUSH OPERATION AND MAINTENANCE

Instructions for **SF103B** and **SF4B**; differences are identified below

How it works



When a person is first seen, the detector is turned off and Wait Time begins. After a while, the valve turns on to fill the cistern and stays on long enough for flushing to occur. Then the valve turns off and the detector turns back on. The time from seeing someone to the valve turning off is the cycle time. Switches 1 and 2 set the cycle time. *Standard settings in italics.*

- 1 Off & 2 Off = 20 minute cycle.
- 1 On & 2 Off = 30 minute cycle.*
- 1 Off & 2 On = 40 minute cycle.
- 1 On & 2 On = 60 minute cycle.

The cycle time should be set taking into account customer requirements and water bye-laws on the amount of water used.

A 30 minute cycle caters for most users.

3 Off = disable manual flush. (recommended where tampering is likely) *3 On = enable manual flush.*

SF4 only: 4 Off standard, 4 On is for reduced detection sensitivity, to prevent false triggering from scent sprays etc.

Routine Maintenance

When a battery change is due, if the local water is hard or work has been done on the pipework, dismantle and clean the solenoid valve. Mild suitable acid such as lemon juice works well at removing scale. Debris may cause slower filling, valve sticking or leaking-through. Ensure that the coil is not below the centre line of the pipe, otherwise any debris can make the valve stick. Each valve has a coarse strainer, accessed from the top of the valve body.

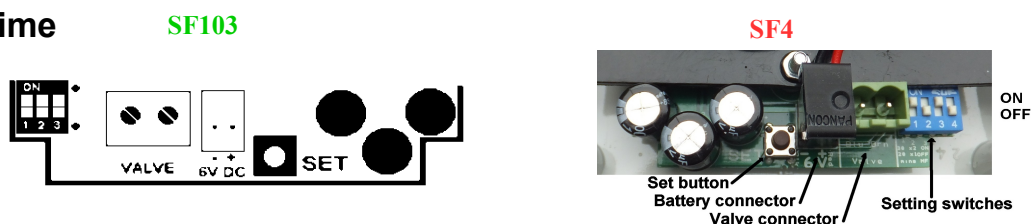
Battery Replacement (recommended every 3 years; SF4 4-5 years or when chirps)

Usual battery life for **SF103** is 3-4 years; for **SF4** 4-6 years. **SF103** stops opening the valve when the battery is too low, **SF4** has a tweeting sounder which sounds for a few weeks before valve stops, **SF4** shows 1-4 flashes showing the battery state when the manual flush button is held. Build-up of scale in the valve can make it stick open when the battery is very low.

Undo the 4 captive screws. The battery pack is held by a releasable plastic strap. Use the release lever on the strap buckle to slacken the strap, unplug and replace the old battery pack, noting positions of wire and connector. Connect the new battery pack as per the original. Test operation using the manual flush button hidden 2cm left of the domed lens. If there is no response, check that manual flush is enabled on internal switches. (switch 3, see below)

The fill-time memory is retained while changing the battery pack, but it is wise to check the fill time again in case water flow has changed since installation. See "Setting Fill Time" below.

Setting Fill Time



1) A short press of the "SET" button will cause the domed lens to flash red to show that the battery is good and connected correctly. Plug in the valve connector, set switch 3 to "ON". Press the manual flush button a few times to confirm operation of the valve, sharp click for "on", dull click for "off". Leave valve closed.

2) Make sure any isolating valve is fully open. Go to (3) unless you need to change the maintenance flush from 12 hours.

Start the cistern fill: hold down "SET" button, press the external hidden "MANUAL FLUSH" button, release both buttons. The valve opens and the red light flashes every 2 seconds, the number of flashes shows the current maintenance flush setting. Each press of "SET" button changes the setting. Press "MANUAL FLUSH" button to save the setting and close the valve.

1 flash = No maintenance flush, 2 flashes = 8 hour interval, 3 flashes = 12 hour interval (standard), 4 flashes = 24 hour interval.

3) Empty the Cistern: press and release "MANUAL FLUSH" button while holding down "SET" button, then release "SET" button. Ignore any flashing light. Check for a good flow of water and adjust with trickle cock on pipe end if required to prevent splashing or to reduce noise. When the flush starts press and release the "MANUAL FLUSH" button to switch off the valve.

When the cistern has emptied, again press and release "MANUAL FLUSH" while holding the "SET" button to start the fill, then release the set button. The red light in the dome flashes at least every 2 seconds to show that setting is in progress. Wait until half flushed, then press the "MANUAL FLUSH" button to switch off the valve. The cistern fill time is now memorised and will be used every time a flush is started whether automatically or via manual flush. Maximum fill time is 30 minutes.

Smartflush Troubleshooting Guide

PROBLEM 1 - UNIT WORKS ON MANUAL FLUSH BUT DOES NOT APPEAR TO SEE ANYONE

Test the PIR detector as follows:-

- 1) Ensure valve is turned off. (If necessary, use the hidden manual flush button, 2cm left of the dome, with switch 3 on).
- 2) Press and hold SET button, watching for red light built into lens. The light should flash once to confirm that battery is OK, then flash 1 second later to show that test mode has been entered. Release button.
- 3) Watch the red light. Detected movement causes the light to flash. (Can take up to 1 second to register).
- 4) Leave test mode by a short press of the SET button or the manual flush button if enabled. (If left in test mode, the unit automatically reverts to normal operation after 16 minutes to avoid malfunction).
- 5) At the end of the test, optionally return switch 3 to the disabled OFF position if necessary.

N.B. If the above test works and manual flush also works and fills for the correct time, the unit is correctly set up and tested. Remember that the controller gives no regular indication that it has seen anyone, except that the red light flashes once at the start of each timing cycle. The unit can be made ready for a new cycle by opening and closing the valve using manual flush.

PROBLEM 2 - VALVE WILL NOT CLOSE

- a) Test the battery and its connections by a short press of the SET button. Red light should flash once. On **SF4** only, hold the manual flush button and count the number of flashes after the first flash; 1=low battery, 2 or 3 OK, 4=new battery.
- b) Disconnect the battery then reconnect, ensuring that both pins are connected and that the red wire goes to "+".
- c) Press the manual flush button (2cm left of the dome). It opens or closes the valve on each press, if enabled via switch 3. The red light flashes each time the valve should *open, not close* using manual flush, to test for reversed wires.
- d) Is the valve fitted correctly? On the Asco valve, the inlet end is stamped with the word 'IN'. A reversed valve will usually allow water to flow all the time mains pressure is applied. Also, the coil should not be below the centre line of the valve, i.e. the spindle through the coil should not point downwards, otherwise any debris can foul the actuator.
- e) Remove the retaining clip and slide off the coil assembly. If the valve stays open, the problem is inside the valve body. Dismantle and inspect as per (f) below.
- f) If the valve was previously working or it appears to be trying to close, debris inside the valve or deterioration of the orifice are the most likely causes. Dismantle the valve, taking careful note of order of assembly and orientation of the return spring. Clean moving parts and strainer. The plunger should move freely against the spring pressure. Inspect the orifice for dirt and damage. The orifice should appear clean and round; in areas of very hard, abrasive water it may become pitted such that it will not seal.
- g) Wiring fault? Check valve connector and controller connector for loose, shorted or reversed wires. Brown + goes to pin 2 on the Asco valve. Check controller connector for bulging or damage due to over-tightening.
- h) Controller or valve faulty? Contact technical support.

PROBLEM 3 - VALVE WILL NOT OPEN

- a) Slacken compression nuts on each side of the valve to ensure that there is water pressure on the Inlet side and that there is no blockage after the valve (e.g. a blockage or stuck washer on a cistern pet cock.)
- b) See a,b,c,f,g and h of problem 2.

PROBLEM 4 - CISTERN ALWAYS SEEMS TO BE EMPTY / UNIT NOT WORKING

The cistern should be empty between flushes. If set up correctly, the cistern should fill and flush and the valve should turn off during the flush, hence the cistern will usually remain almost empty. With a typical fill time of 3 minutes and a cycle time of 30 minutes the unit will appear to be 'not working' for 27 out of every 30 minutes even at busy times, so the chance of seeing any activity on a spot check is unlikely. If in doubt see problem 1.

PROBLEM 5 - FILLING TIME TOO SHORT OR TOO LONG

Set filling time again, following the instructions overleaf. The fill time is accurate to 1 second or so due to the quartz crystal timing used. Any fill time up to 30 minutes may be set. If a 20 minute cycle is selected and fill time is longer than 20 minutes, the unit will open the valve as soon as movement is detected and stay open for the set fill time. If a fill time of longer than 30 minutes is needed, then either there is a restriction to the flow or the water pressure is too low. As supplied Smartflush can work with a 20 litre cistern fed with as little as a 1 metre head. A low pressure valve is available for more extreme conditions, or it may be possible to run from a nearby mains water supply rather than the tank feed. (depending on local regulations).

Fluctuations in mains pressure may cause the fill time to be a little too short or too long, resulting in a missed or double flush occasionally. Minor fluctuations are compensated for by the fact that the unit will remain "in step" as long as the valve turns off sometime during the emptying of the cistern, because the cistern always empties to the same level.

If you have any further technical queries, contact our technical support on 01924-420029.

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