

## Technical Support

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

**PLEASE DO NOT RETURN ANY ITEM WITHOUT AUTHORISATION**

**PLEASE LEAVE THESE INSTRUCTIONS WITH CUSTOMER**

### Guarantee

This product is guaranteed from date of purchase to be free from manufacturing defects for a period of 3 years if registered, with the following conditions :-

- 1) The product has been properly installed as per instructions.
- 2) Damage due to water ingress to controller, debris from water supply, hard water erosion (see (2) on front page), vandalism or misuse are not included. Statutory rights are not affected.

Service: Springwell Microelectronics Ltd, 197 Raikes Lane, Birstall, Batley WF17 9QF

### Environmental information

This product may contain substances that can be hazardous to the environment if not disposed of properly. Electrical and electronic equipment should not be dumped with general household waste but must be separately collected for proper treatment and recovery. The crossed-out bin symbol is a reminder of the need to dispose of the product properly at end of life; in this way you will assist in the recovery, recycling and re-use of many of the materials in this product and help to reduce the amount of electrical and electronic waste ending up in landfill and to improve quality of life by preventing the release of potentially hazardous substances into the environment. Please contact us for information on disposal arrangements or take to a local recycling facility. Where possible please recycle your packaging.

Producer registration number WEE/DB0002ZR

Carefully designed and distributed by:  
 SPRINGWELL MICROELECTRONICS LTD, 197 Raikes Lane, Birstall, Batley, West Yorkshire WF17 9QF  
 The manufacturer reserves the right due to continuous development to change specifications without notice

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Producer registration number WEE/DB0002ZR

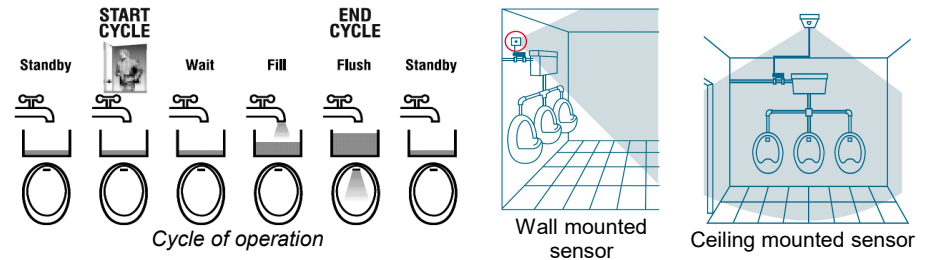


## SPRINGWELL SMARTFLUSH SF4M FITTING INSTRUCTIONS

Pack contains: sensing/control unit for 230V power; low-voltage latching valve (as supplied could be open or closed), assembled valve cable with gland and connector; clips, screws, wallplugs.

### How Smartflush works

Smartflush stands by until movement is detected, then waits before filling and flushing the cistern



### Installation

**THIS UNIT MUST BE FITTED ONLY BY A COMPETENT ELECTRICIAN**

- 1) **Fit back box** of control unit on the wall or ceiling where it can be seen.
- 2) **Fit valve:** Ensure that there is an isolating valve in the feed to the new valve (to comply with water regulations). Isolate water supply. Cut out 30mm of pipe feeding cistern and fit valve, with coil not below centre line of pipe. **Direction is IMPORTANT; Valve is marked 'IN' for inlet.** Fully open any existing trickle cock except for very **hard water**, when a partly open cock avoids excessive wear.
- 3) **Fit cable** and gland to box. (If too short, replace with longer similar cable, **polarity important**).
- 4) **Set internal switches** 1 and 2 which adjust the cycle time, i.e. the time from detection to end of flush. (see diagram above) and ensure switch 3 is on.

#### Switch settings

1 Off & 2 off	= 20 minute cycle	The cycle time should be set taking into account customer requirements and water regulations on the amount of water used. A 30 minute cycle caters for most users; 20 minutes recommended for schools and hospitals.
1 On & 2 off	= 30 minute cycle (default)	
1 Off & 2 on	= 40 minute cycle	
1 On & 2 on	= 60 minute cycle	
3 Off	= disable manual flush button	<b>manual flush</b> button is hidden below the dolphin's tail on the front of the unit. (see diagram overleaf)
3 On	= enable manual flush button	
4 Off	= standard sensitivity detector	Switch on to reduce movement detection range and sensitivity. Recommended if scent spray is nearby.
4 On	= low sensitivity detector	

5) Use 3-core flex to **connect via a 1A fused spur** to connections marked N (neutral), E (earth) and L (live). Seal entry hole with a cable gland so that the unit is watertight. **Plug in valve. Power on;** the red light on the power board should light. Press manual flush button a few times to confirm operation of the valve, sharp click with red flash in the lens for "on", dull click with no flash for "off". **Leave valve closed.** N.B. As supplied, the valve might be latched open or closed, this is normal.

6) **Turn on water** with isolating valve fully open. Smartflush is factory pre-set to activate a **maintenance flush** at 12 hour intervals if no-one is seen. **Go to step 7 if this setting is okay.** Switch off switch 3. Hold down internal **SET** button, tap the external hidden **Manual Flush** button, then release **SET** button. The red light flashes every 2 seconds; the number of flashes shows the maintenance flush setting. Each press of the **SET** button changes to the next setting, as follows :-

- 1 flash = No maintenance flush
- 2 flashes = 8 hour interval
- 3 flashes = 12 hour interval, (factory setting)
- 4 flashes = 24 hour interval

When desired setting is shown, press **Manual Flush** button to save setting. Switch on switch 3.

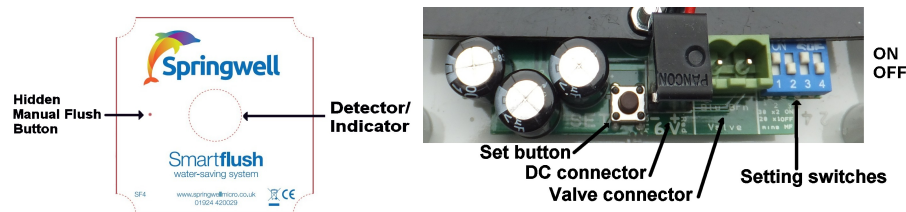
7) **Empty the cistern ready to set the fill time:** Hold the **SET** button, tap **Manual Flush** to start filling, release the **SET** button. When flushing starts, tap **Manual Flush** to close the valve. While filling, check for a good flow of water and adjust with trickle cock on pipe end if required. If flow noise is a problem, e.g. next to sleeping quarters or classrooms, reduce the flow by means of a trickle cock.

8) **Set the fill time:** Each time the valve opens, it should stay open long enough to fill and flush, hence it should start and end empty, so this is where we tell it how long to stay open. Hold the **SET** button, tap **Manual Flush** to start filling, release the **SET** button. The light in the domed lens flashes every 2 seconds to show setting in progress. Wait until the cistern is **part way through flushing then tap the Manual Flush** button to close the valve. The cistern fill time is now memorised and will be used every time a flush is started whether automatically or manually. Maximum fill time is 31 minutes.

9) **Set switch 3** as required (see 4 overleaf). Check all screws, gland and connections for security. Screw controller unit lid onto box.

10) Fill in your part of the registration sheet and leave it with these instructions with the owner/manager. Please explain section 4 (switch settings) to the person in charge of building maintenance.

### SWITCHES / CONNECTIONS / INDICATOR



#### Multiple cisterns

2 or 3 cisterns with a common feed may be controlled by a single controller and valve. In this case, adjust outlet cocks feeding each cistern so that they have roughly equal fill times (during step 7), then set up the fill time using the slowest cistern (step 8). Contact technical support if further advice is required.

#### Regular Maintenance

Every 3 years in very hard water areas, dismantle and if necessary clean the valve and internal strainer (lemon juice is effective at clearing scale), then reassemble and operate **Manual Flush** to confirm correct operation. Ensure that the view from the controller is not obstructed. Test PIR detector as below.

## Smartflush Installation Troubleshooting Guide

All units are fully tested prior to despatch. If there is an apparent fault please check the following :-

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

**Test the infra-red detector** (PIR) as follows:-

- 1) Ensure valve is closed. (If necessary, use **Manual Flush** button with switch 3 on).
- 2) **Press and hold SET button**, watching the domed lens. It should flash once to confirm that the power is good, then again a second later to show that test mode has been entered. Release button.
- 3) Watch the light, which flashes when slow movement is detected. (Can take up to 1 second).
- 4) Exit 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 call-backs).
- 5) After testing, return switch 3 to the desired position to leave **Manual Flush** button enabled or not.
- 6) To avoid false triggering, e.g. by scent sprays, switch on switch 4 for lower sensitivity.

N.B. If the above test works and **Manual Flush** also works and fills for the correct time, then the unit will work correctly in normal use. The controller **normally gives no indication** that it has seen anyone, except that the red light flashes just once at the start of each timing cycle. The unit can be reset ready for a new cycle by opening and closing the valve using **Manual Flush**, then waiting for 10 seconds.

### PROBLEM - VALVE WILL NOT CLOSE

N.B. The valve has a magnetic latch so it may be left open or closed when disconnected.

- a) **Test power** and connections:- Press and hold the **Manual Flush** button; after the first flash, it will then flash once or more to confirm that power is present. With switch 3 on, **Manual Flush** should alternately open and close the valve. If there is no response, check that wires and connector are correctly connected and have not been damaged, ensuring both pins on the white plug are connected and that red wire goes to "+". Power board light should always be on.
- b) **Press the Manual Flush** button (see facing page). It opens or closes the valve on each press. Ensure that switch 3 is switched ON (Away from edge of box) otherwise **Manual Flush** is disabled. The red light flashes each time the unit tries to open the valve using **Manual Flush**, to test for reversed wires. If the red light flashes as the valve closes, the blue and brown wires are reversed.
- c) **Is the valve fitted the correct way round?** 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.
- d) Remove the coil retaining clip. **Slide off the coil assembly**. If the valve stays open, the problem is inside the valve body. Dismantle and inspect as per (e) below.
- e) If the valve was previously working or it seems to be trying to close, **debris or scale inside the valve** is a likely cause. Dismantle the valve, taking careful note of order of assembly and orientation of the spring. Clean moving parts and strainer (soaking in lemon juice removes scale well). The plunger should move freely against the spring pressure. Inspect the orifice and seal for dirt or damage. The orifice should be a smooth circle; in areas with very hard, abrasive water, the orifice may become pitted, causing leakage through the valve. If so, the valve will need to be replaced. To reduce future wear in this case, use a trickle cock on the pipe end to reduce the flow, then reset the fill time.
- f) **Wiring fault?** Check valve and controller connectors for loose or shorting wires. Check connector polarity:- Brown +2 goes to pin 2 on the Asco valve.

### PROBLEM - VALVE WILL NOT OPEN

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

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

The cistern should be empty between flushes. When a fill cycle occurs, the cistern should fill and flush and the valve should turn off during the flush, hence the cistern will usually remain 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 small. If in doubt see first problem (facing page).

### PROBLEM - FILLING TIME TOO SHORT / LONG

**Set the fill time again**, carefully following the fitting instructions. Remember to start the self-timed fill with the cistern empty, i.e. having just flushed. The fill time is accurate to 1 second or so due to the quartz crystal used for timing. 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 valve will open immediately on detection and stay open for the set fill time. If a fill time longer than 30 minutes is needed, then either there is a restriction to the flow or the water pressure is too low. As supplied Springwell 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.

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