Smart Flush™ Hardware Installation

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Hardware Installation

This section shows the typical installation of the Smart Flush™ for either Battery or Electricity operated units. Installing the hardware is the same whether you are installing it in a wall hung or trough urinal.

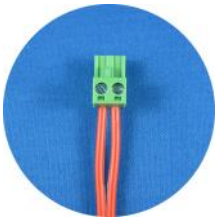
1. Find a suitable location to mount the Smart Flush™ unit.
2. The unit must be installed away from direct weather and in such a way that water can not follow the wires back to the controller.
3. Lift up the two mounting tabs and use two appropriate screws to mount the control box on the wall.
4. If using a **AC** timer, keep in mind that the power cable is 1.8 metre long and should be plugged directly into a general power outlet, not into an extension lead.
5. If using a **DC** timer, insert 8 x AA batteries. DO NOT MIX BATTERY TYPES.
6. Connect the cable to the valve output on the timer as shown below.

Wire Connection

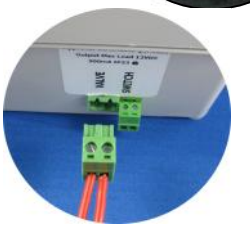
DC: Wire the latching valve to the socket marked VALVE observing the polarity. Positive (+) connects to the right hand side. If the valve operates backwards, then the wiring polarity needs to be reversed.

AC: Wire the actuator valves to the sockets marked VALVE1, VALVE2. Maximum of 2 valves per socket. VALVE 1 will activate first for the flush period followed by VALVE 2. The AC timer will run up to 4 valves.

Cut and stripe the cable.



Insert the cable into the green adaptor.



Tighten the screws.

Plug the green adaptor into the valve output.

Smart Flush™ power settings

Smart Flush™ Electricity Operated: 240V - 24V AC
At a power outage, all configurable items are retained and the clock will continue to run up to 14 days.

Smart Flush™ Battery Operated: 6-12V DC
It is powered by eight AA Alkaline batteries for a total power of 12VDC. The LCD display will turn off during normal operation to help conserve power.

Smart Flush™ controller settings

To select the settings menu, push the *SELECT* button. Press the *UP & DOWN* buttons to scroll to the option you wish to change. Press the *SELECT* button to select the sub-menu of the currently displayed menu.

The selectable items in the sub-menus will be flashing. To change these values use the *UP & DOWN* buttons to adjust any value. If the value is correct press *SELECT* to move to the next step. Once all settings have been set, you will return to the settings menu, press *UP & DOWN* buttons and scroll to *EXIT* and press *SELECT* to save your settings.

1. **CLOCK:** Set the day of the week and the time of day in a 24 Hour format. Note there is an am/pm indication to avoid incorrect settings.
2. **PROG:** Set the program number for the required flush cycles. A different program can be set for each day

SMART FLUSH™ AC UNIT	SMART FLUSH™ DC UNIT
PROG 1. = 1pm	PROG 1. = 1pm
PROG 2. = 7am,7pm	PROG 2. = 7am,7pm
PROG 3. = 7am,2pm,9pm	PROG 3. = 7am,2pm,9pm
PROG 4. = 7am,11am,3pm,7pm	PROG 4. = 7am,11am,3pm,7pm
PROG 5. = 7am,11am,3pm,7pm,11pm	PROG 5. = 7am,11am,3pm,7pm,11pm
PROG 6. = 7am,10am,1pm,4pm,7pm,10pm	PROG 6. = 7am,10am,1pm,4pm,7pm,10pm
PROG 7. = 0am, 6am,9am,12pm,3pm,6pm,9pm	PROG 7. = 0am, 6am,9am,12pm,3pm,6pm,9pm
PROG 8. = 3/6/9/11am, 2/5/8/11pm	PROG 8. = 3/6/9/11am, 2/5/8/11pm
PROG 9. = 0/2/4/9am, 12/2/4/6/8/10pm	PROG 9. = 0/2/4/9am, 12/2/4/6/8/10pm
PROG 10 = PUB/BAR 0/1/2/3/5/9am, 1/3/5/6/7/8/9/10/11pm	PROG 10 = PUB/BAR 0/1/2/3/5/9am, 1/3/5/6/7/8/9/10/11pm
PROG 11 = SCHOOLS 1/8/9/10/11am, 12/1/2/3/4/6pm	PROG 11 = SCHOOLS 1/8/9/10/11am, 12/1/2/3/4/6pm
PROG 12 = OFFICES 1/8/9/11am,1/3/5/6/7pm	PROG 12 = OFFICES 1/8/9/11am,1/3/5/6/7pm
PROG 13 = CINEMAS 1/8am, 1/3/5/7/9/11pm	PROG 13 = CINEMAS 1/8am, 1/3/5/7/9/11pm
PROG 14 = SHOPS 1/8/9/11am, 1/3/5/6/8pm	PROG 14 = SHOPS 1/8/9/11am, 1/3/5/6/8pm
PROG 15 = EVERY HALF-HOUR	PROG 15 = EVERY HALF-HOUR
PROG 16 = EVERY HOUR	PROG 16 = EVERY HOUR
PROG 17 = EVERY 2 HOURS	PROG 17 = EVERY 2 HOURS
PROG 18 = EVERY 3 HOURS	PROG 18 = EVERY 3 HOURS
PROG 19 = EVERY 30 MINS FROM 7AM TO 7PM	
PROG 20 = EVERY HOUR FROM 7AM TO 7PM	
PROG 21 = EVERY 2 HOURS FROM 7AM TO 7PM	
PROG 22 = EVERY 3 HOURS FROM 6AM TO 9PM	

3. **FLUSH:** Set the flush duration in seconds from 1sec to 90sec. This is the number of seconds the valve will remain open for flushing.
4. **HELP:** Displays the programs table one line at a time. To skip a line hold the UP or DOWN button.
5. **EXIT:** When EXIT is selected push SELECT to **store** all settings. The controller will then enter automatic operation.

Note: If any of the menu items are left unattended for 4 minutes the controller will time-out and automatically save all settings and return to automatic operation.

TEST FUNCTION / MANUAL FLUSH

To test the valve wiring, hold both UP & DOWN buttons simultaneously and the valve will open. The valve will remain open until the buttons are released.

Solenoid Valve Installation

IMPORTANT– READ BEFORE INSTALLATION

- **This product must be installed by a licensed plumber.**
- All local Occupational Health and Safety procedures must be followed.
- Warrant claims will be dependent on the system being installed correctly.
- Installations must comply with all relevant water, plumbing and building regulations.
- Installation manual must be fully understood to achieve the best results. If not clear please contact your distributor or project management for clarification.
- Confirm details with the site contact/customer. Check toilet access and any other issues that may arise from turning off the water supply and confirm with the site contact before starting work.
- Check that all components for the system have been included.
- Please make sure any other components needed for the installation such as threaded rises, self sealing flex hose or adaptors are available before commencing installation.
- Urinals and surrounding areas must be deeply cleaned prior installation
- Confirm that water does not pool in the urinal. If it does, installations may not be appropriate.

Flush Flow Rates/Volume

In some circumstances there may be the need for additional components to be used or extra procedures to be followed to make sure the Solenoid Valves can be installed correctly.

High inlet pressure
The solenoid valves are designed to work from 10 to 300kpa. However, when the water pressure is higher than 300kpa, it is recommended to install a pressure limiting valve, specially when using a DC solenoid valve. Some inline flow control valves can be modified to produce a flow rate appropriate to a normal flush volume. Normally adjusting the time the solenoid is operating will be sufficient to overcome any issues.

Low inlet pressure
The solenoid valve requires more than 10kpa to be able to close properly. Low pressure will not allow enough water to pass through the solenoid to saturate the existing flush pipe and spreader bars/roses. In this case ring for technical support.

Recommended water flow per urinal
In order to achieve a good flushing please follow the indication below. These estimates are based on water pressure between 50Kpi and 300Kpi. Please **DO NOT** over flush.

Type	Urinal Size	Average Flush	Average Flushing Time
Single / Wall Urinal	600mm	1.5L - 2.5L per flush	5 - 10 Sec.
Twin / Two Bertha	1200mm	3.0L - 5.0L per flush	10 - 20 Sec.
Three/ Three Bertha	1800mm	4.5L - 7.5L per flush	15 - 30 Sec.
Large / Four Bertha	2400mm	6.0L - 10.0L per flush	20 - 40 Sec.
Extra Large/ Five Bertha	>3000mm	7.5L - 12.5L per flush	25 - 50 Sec.

Non level troughs
This creates an issue with urinal pooling in the bottom of the trough. This will have always been a problem and generally will not go away with the Green Sleeve installation. Unless the plumber is able to modify the outlet, we recommend that a full urinal replacement may be the only way to correct the problem.

Connecting a Single Solenoid Valve

The solenoid valves are designed to work from 10kpa to 300kpa. A single solenoid valve can be installed in wall urinals or singe bertha/through urinals.

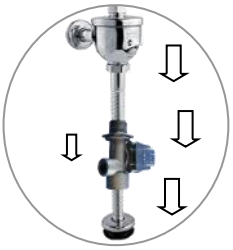
1. Make sure you have the correct solenoid valve for you AC/DC timer.
2. Adjust the solenoid to the pipe work following the arrow mark. Make sure the water inflow comes into the solenoid by following the sign.
3. Connect the other end of the cable to the solenoid valve as shown in the pictures below and make sure the solenoid is connected to the correct AC/DC out on the timer.
4. When connecting to a cut water mains piping, make sure no filings are left behind as it can cause the valve to remain open.

Cut and stripe the cable.

Place the spade connectors and crimp them to the wire.

Insert the spade connectors onto the solenoid valve leads.

Check arrow sign before connecting to pipe work.



The water flow must follow the arrow sign.

WARNING

- Installing an incorrect solenoid valve to the timer may cause damages in the hole system affecting its performance.
- Cables are polarity sensitive for the DC timer. RED must go (+) / BLACK must go (-).
- If the water pressure is higher than 300kpa a pressure limiting valve should be installed to avoid issues when the battery is low or flat.

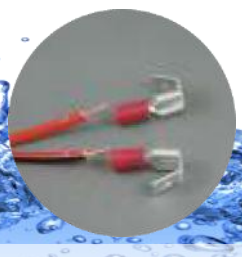
Connecting Multiple Solenoid Valves

If multiple solenoid valves are required in the system you must use an **AC** Smart Flush™, which can run up to 4 solenoid valves. Follow the instructions for the solenoid valve installation and add extra cable as well as spade and piggyback connectors for the new solenoids.

Follow the instructions to connect a solenoid valve on the previous page and then follow the next instructions:

1. Cut and stripe the cable so the wire is exposed on both ends.
2. Place the spade connectors at both ends and crimp the wire connectors together.
3. On other cable place the piggyback connectors and crimp the wire and connectors together.
4. Insert the piggy back connectors onto the solenoid valve.
5. Connect one end of the cable with the spade connectors onto the piggyback connectors, then the other end onto the extra solenoid valve
6. Repeat steps above to connect more solenoids.

Cut and stripe the cable.



Place the Piggyback connectors and crimp them to the wire.

Insert the piggyback and additional spade connectors onto the valve leads.

External Cistern Notes

- Fit solenoid and timer as high in the cistern as possible allowing for lid to be fitted. This will distance the unit from any possible splashing.
- Fit elbow directly above outlet so that piping descends into sparge outlet. This will optimise flow across the urinal face.
- Ensure that the input pressure does not exceed the capabilities of the output pipe.
- Adjust timer and input flow for correct flush ensuring water does not back up into air gap.
- Check operation of the solenoid by running a timer test sequence (see timer instructions).

CAUTION

Ensure water form solenoid descends directly over sparge outlet to maximise pressure into the urinal spreader and prevent potential splash-back onto the timer. Alternatively, the valve can be mounted over the input using an easy hooker flexi pipe connect to the physical air gap. It is very important to test flow by activating the timer self test mode to confirm input pressure does not overwhelm sparge pipe. Please see timer instructions for self test mode.

Typical Concorde Urinal Cistern

Typical in wall cistern installation before installation of solenoid valve

Align & connect Physical Air Gap

Connect all thread tubbing to inlet pipe via stop tap

Installing a Physical Air Gap

To prevent contaminated water to flow back into the potable water supply pipe and avoid water contamination as required by Australian Plumbing Standards, an air gap must to installed in the direct drain line piping.

Make sure the physical Air Gap is installed facing up.

Smart Flush™ Key Switch Installation

The Smart Flush™ has two modes of operation; Automatic and SW/PIR mode.

Automatic Mode:
Automatic flushing occurs depending on the program selected for each day of the week.

SW/PIR (Holiday Mode or Manual Flush mode):
This mode is activated by a key switch (optional extra part No. TIM2212). When set to 'ON' the controller will only flush once per day (Holiday Mode). Turning the Key switch 'ON' and 'OFF' will tell the timer to perform a manual flush.

The **SW/PIR** is specially formulated to manually operate the Smart Flush™ for maintenance or cleaning purposes. Installation of the switch is very easy, simply mount the switch on the wall in an accessible place and follow the steps below:

Remove the connector placed into 'switch'

Connect the timer switch into the 'switch' slot.

turn the key to 'manual' to flush.

Flat Battery Warning

After the valve is turned off, the battery voltage is tested. If this voltage is found to be too low for a reliable operation, the Smart Flush control will **Stop Flushing!** The LCD screen will show "**change batteries"** and there will be a beep while this message is shown. This message will appear every hour or when any of the buttons are pushed.

To clear the low battery warning, replace the batteries and check the re-set the clock. **It is recommended to replace the batteries every year.**

Smart Flush™ Warranty

This range of product is covered by a limited 1 year warranty against faulty workmanship or component failure from the date of installation. A faulty unit should be returned in the first instance to the dealer from which the unit was purchased.

Damage to the unit due to misuse, power surges, lightning strikes or installation that is not in accordance with the manufacturer's instruction will void the warranty.

"WATER DAMAGE WILL NOT BE COVERED UNDER WARRANTY"

Warranty does not cover:

· Removal or replacement of controller from its installation
· Travel costs to or from installation site
· The return of the controller to the manufacturer
· Any damage caused by water in the controller box
· Any damage caused by flooding

If the power cord is damaged, do not use the controller; return the unit to the supplier for repair.