



Cistermiser



Direct Flush Urinal Control Valve

Installation Guide

Please keep this booklet for future reference.

Installer: when you have read these instructions please ensure you leave them with the user.

1. Introduction

The Direct Flush valve provides automatic flushing of the urinal after use ensuring the highest level of hygiene from the minimum volume of water. No cistern is required. Once installed the operation is entirely automatic with continuous monitoring of user behaviour and washroom demand. One Direct Flush is required for each urinal.

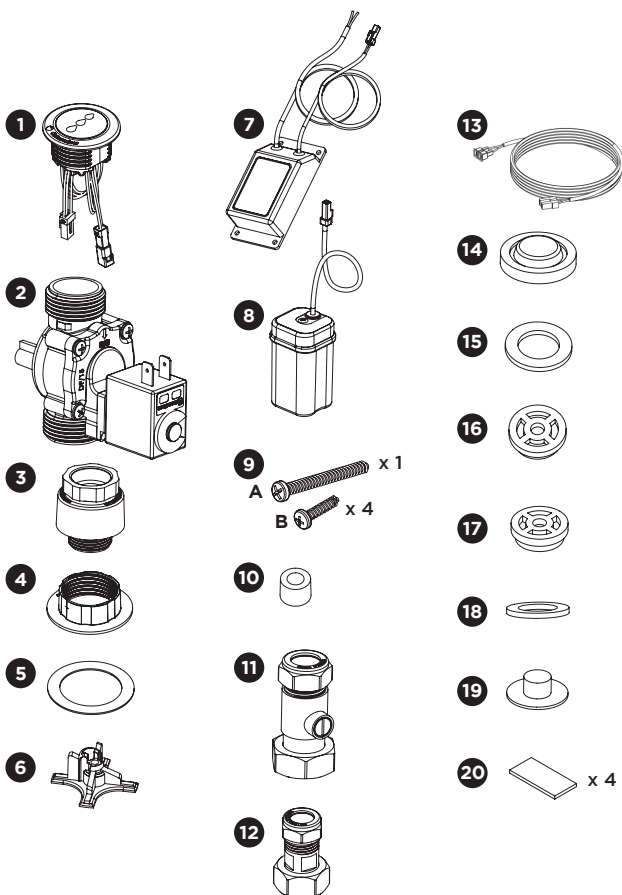
The Direct Flush detects users at the bowl and flushes when the user departs. If a user is detected while the valve is flushing the Direct Flush will pause the flush to prevent splashing of the user and save water: this is called the “flush arrest” function.

The Direct Flush can be configured to automatically run a hygiene flush after 12 hours without use. See section 7 for details.

Direct Flush Discreet (DFD) Direct Flush Accessible (DFA)

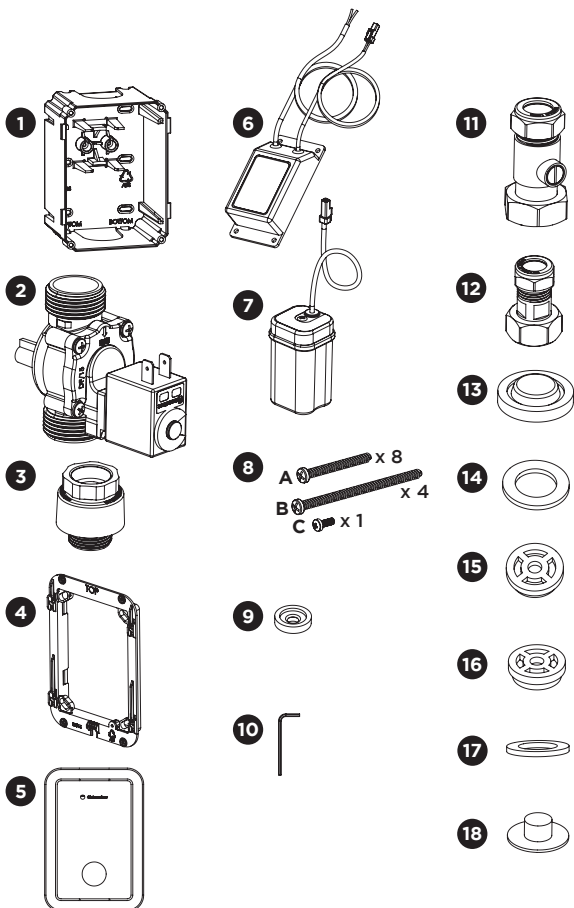
Direct Flush Discreet supplied parts

- 1 Sensor unit
- 2 Valve unit
- 3 DC pipe interrupter inc 4lpm flow regulator (grey)
- 4 Sensor nut
- 5 Rubber gasket
- 6 Clamp plate
- 7 Mains transformer
- 8 Battery pack
- 9 Screws
- 10 Screw packer
- 11 15mm pipe fitting with isolation valve
- 12 15mm pipe fitting
- 13 3m extension cable
- 14 Filter
- 15 Washer
- 16 3lpm flow regulator (brown)
- 17 5lpm flow regulator (yellow)
- 18 Seal
- 19 DC Pipe Interrupter jet
- 20 Adhesive pads



Direct Flush Accessible supplied parts

- 1 Mount box
- 2 Valve unit
- 3 DC pipe interrupter inc 4lpm flow regulator (grey)
- 4 Clamp frame
- 5 Sensor plate
- 6 Mains transformer
- 7 Battery pack
- 8 Screws
- 9 Shoulder washer
- 10 2mm allen key
- 11 15mm pipe fitting with isolation valve
- 12 15mm pipe fitting
- 13 Filter
- 14 Washer
- 15 3lpm flow regulator (brown)
- 16 5lpm flow regulator (yellow)
- 17 Seal
- 18 DC Pipe Interrupter jet



2. Installation

IMPORTANT:

Read this before fitting the urinal valve when flushing directly from the mains supply.

Why is a DC pipe interrupter supplied?

When urinals are flushed directly from the mains water supply, the Water Regulations require that the water supply be protected by a suitable category 5 protection method or device. In the case of urinals, this can be achieved in three ways:

- 1 The use of a WRAS approved type DC pipe interrupter (supplied with Cistermiser Direct Flush).
- 2 The use of a dedicated supply for flushing use only, supplied from a break tank that protects the mains supply with a type AA, AB or AD air gap.
- 3 The use of a specific type of urinal which has been tested and shown to incorporate the equivalent of a type AB air gap.

What are the possible implications of fitting a DC pipe interrupter?

- 1 Water may overflow from the DC pipe interrupter if the sparge or pipe run leading to the sparge is too restrictive. (See diagram **A** opposite). This may also occur if there are too many bends in the pipework.
- 2 If the feed to the urinal is coming directly from the mains water supply, the flow rate may be too high for the sparge and bowl and splashing may occur in the urinal bowl.
- 3 System pressure is lost when a DC pipe interrupter is fitted, therefore the flush performance may change after installing a DC pipe interrupter.

NOTE:

When using flexible pipes: flexible pipes typically have a smaller internal diameter than copper pipes. A greater distance between the valve and sparge may therefore be required. Ensure there are no kinks in the flexible pipe.

How to install a DC pipe interrupter correctly

1 To avoid overflowing:

- Install a free-flowing, low restriction sparge.
- Install the DC pipe interrupter and valve as high as possible and use as long a pipe run between the pipe interrupter and the sparge as possible. (See diagram **A** opposite)
- Select the appropriate flow regulator to match the flow through the urinal sparge provided.
- Use a large pipe size in the pipework between the DC pipe interrupter and the sparge.
- Minimise pipe bends between the DC pipe interrupter and the sparge.

2 To avoid splashing:

- Fit a sparge and urinal bowl to accommodate the flow rate.
- Select the appropriate flow regulator to fit onto the pipe interrupter provided.

NOTE:

For grey water/rain water harvesting.

Ensure adequate filtering is fitted, a 10Qm filter is recommended. For chemical water treatment. If the water system has been treated with chemicals, ensure the system is thoroughly flushed before fitting any Cistermiser products. Concentrated chemicals in dead legs can damage the product and result in failure. If the water is treated with Chlorine Dioxide (ClO₂), concentration levels must be maintained below 5ppm.

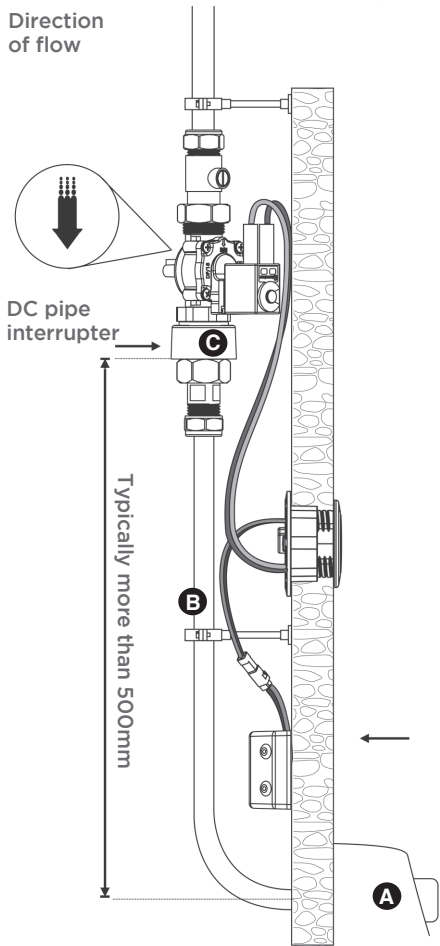
NOTE:

As with all water containing products, limescale in hard water areas can affect the products performance. This can result in maintenance to remove the limescale as and when required.

DFD Installation

A

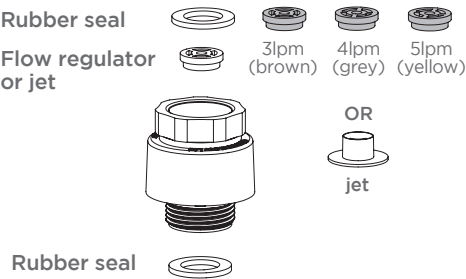
IMPORTANT:
Read installation guidelines on page 4



The DC pipe interrupter is supplied with 3 flow regulators. Select the appropriate flow rate to match the sparge **A** and the volume of the pipe **B** to prevent overflow from the DC pipe interrupter **C**.

The valve should always be installed as high as possible on the vertical pipe feeding the sparge outlet to prevent water backing up and leaking from the DC pipe interrupter. A 3m extension cable is supplied.

DC pipe interrupter is supplied with:



In some circumstances a squeak may be heard when the valve closes. If so, the DC pipe interrupter jet may be used to reduce this.

Power options

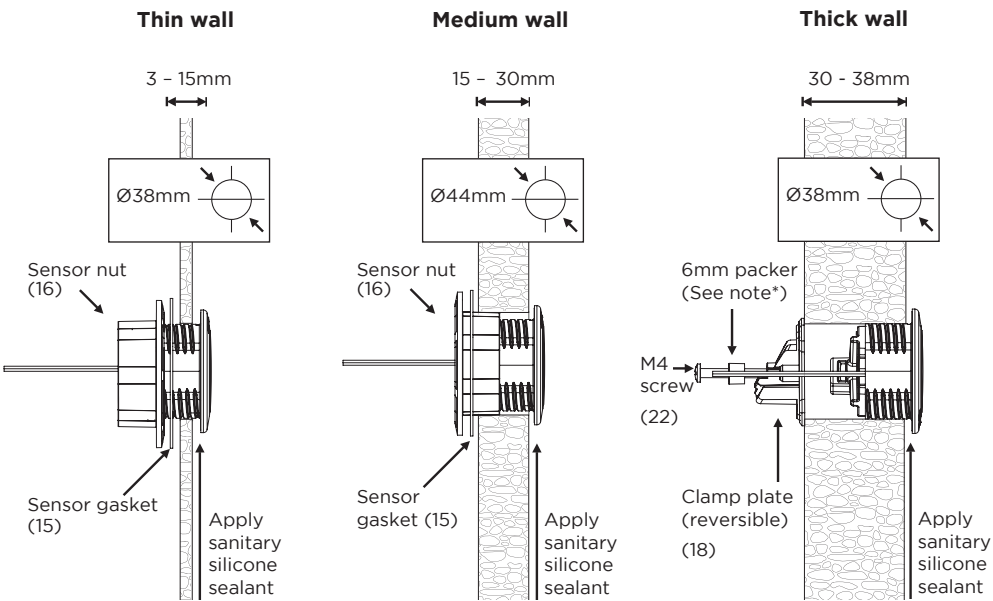
Battery pack (required 4 x AA alkaline batteries)
OR

DMA55 - Mains transformer included with Direct Flush (requires 1A fused spur)

Multi-Product Power Supply Unit (PSUC) (not supplied) is suitable for powering up to 20 units

Sensor installation

Install sensor vertically above the urinal.

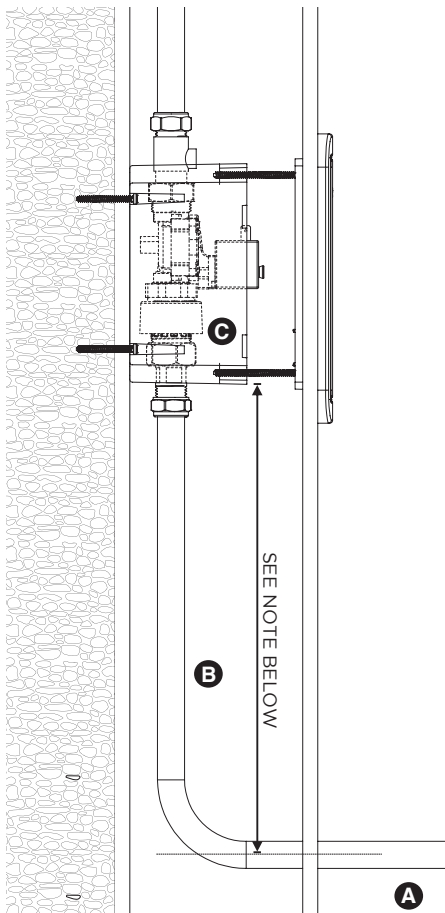


NOTE:

*If wall thickness is under 32mm use packer to prevent screw causing damage to sensor.

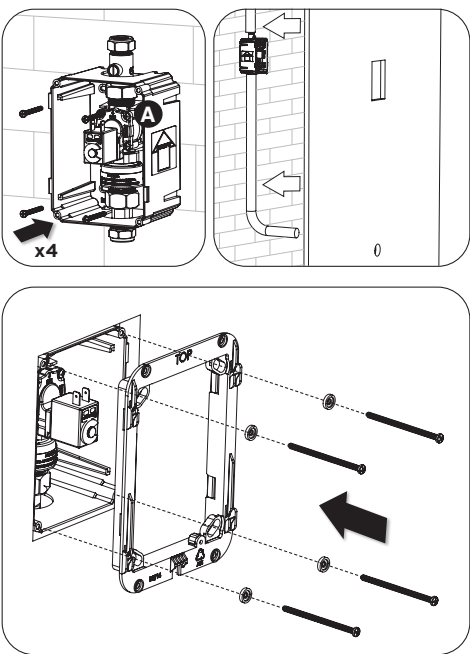
DFA - option 1 wall mounted

Wall installation



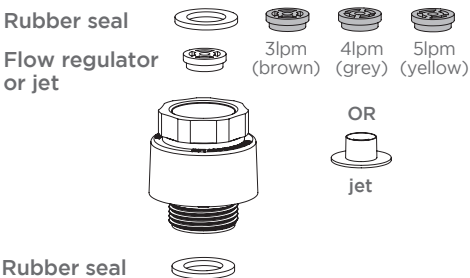
The DC pipe interrupter is supplied with 3 flow regulators. Select the appropriate flow rate to match your rate through the sparge (A) and sufficient volume of the pipe (B) to prevent overflow from the DC pipe interrupter (C).

NOTE:
The bottom of the mount box should always be installed as high as possible on the vertical pipe feeding the sparge outlet to prevent water backing up and leaking from the DC pipe interrupter.



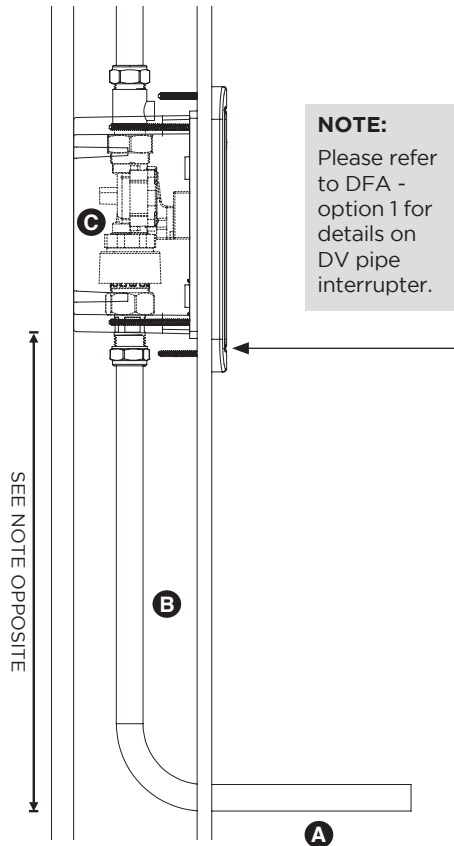
NOTE:
4 long screws (8B) are provided to allow for flexible fixing of the mount box and clamp frame, if required.

DC pipe interrupter is supplied with:



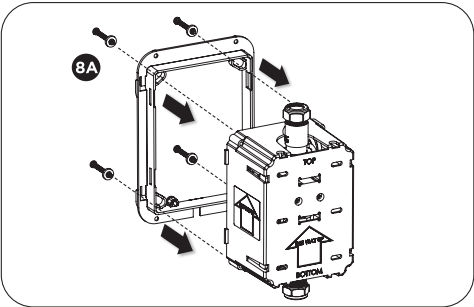
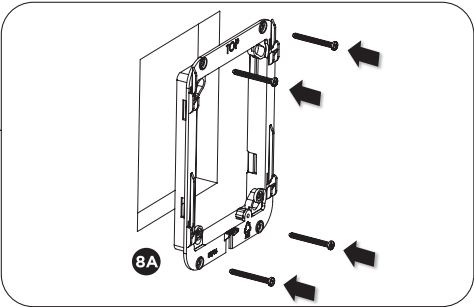
In some circumstances a squeak may be heard when the valve closes. If so, the DC pipe interrupter jet may be used to reduce this.

DFA - option 2 panel mounted

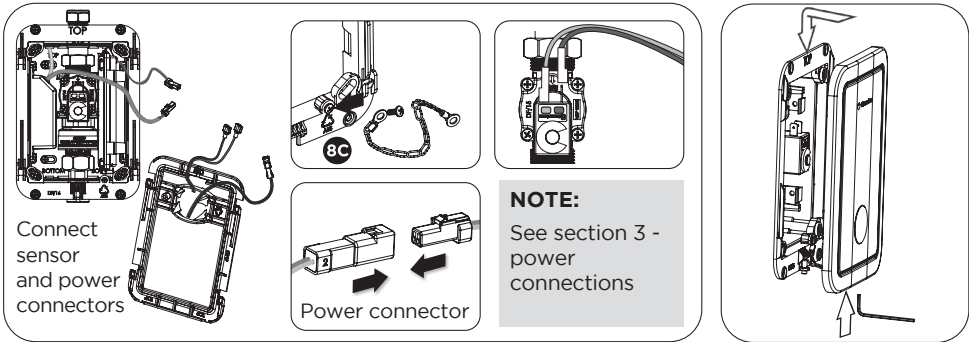


NOTE:

The bottom of the mount box should always be installed in as high as possible on the vertical pipe feeding the sparge outlet to prevent water backing up and leaking from the DC pipe interrupter.



DFD & DFA - fitting sensor plate



3. Power Connections

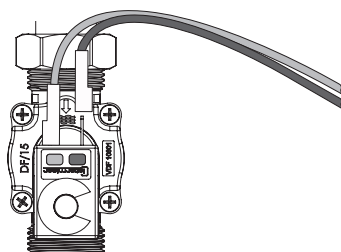
NOTE:

Only one power source should be connected at any time, either mains or batteries. It is not possible to connect both simultaneously.

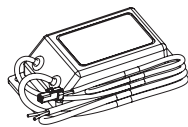
Batteries

Open the battery pack and fit 4 Alkaline AA (LR-6) batteries as indicated. Reseal and fasten into place on the panel using screws **8A** or with the tape pads (for DFA installations slide into the mount box).

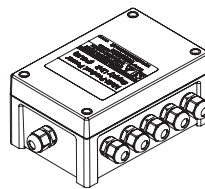
If using the mains transformer, fasten into place on the panel in a dry location using screws **8A** or with the sticky pads (for DFA installations slide into the mount box) and connect the un-terminated mains cable to a 50Hz 230V AC single phase supply via a 1A fused spur (not supplied).



OR



OR



Battery pack
(required 4 x AA
alkaline batteries)

Mains transformer
(requires 1A fused spur)

**Multi-Product Power Supply
Unit (not supplied) suitable for
powering up to 20 units**

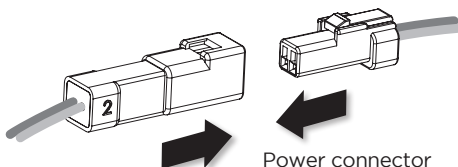
Connect the spade connectors from the sensor (DFD) or sensor plate (DFA) to the solenoid terminals – take care to connect the wires according to the colour coding on the label. If these are not long enough they can be extended by up to 1.5 metres. (Extension cable supplied with DFD).

Electrical connection

Connect the power connector from the sensor (DFD) or sensor plate (DFA) to the mains transformer, or in the case of a battery powered installation, the battery pack.

NOTE:

Remove the label from the sensor **BEFORE** connecting to the power. When the power is first connected the LED in the sensor flashes amber. This is normal and lasts only a few seconds.



Power connector

Additional configuration options with the **Infrared Configuration Unit (ICU)** remote control (sold separately)

- Hygiene flush on/off. The installer is able to switch the 12 hr hygiene rinse function on or off.
- Clean mode. The Direct Flush can be disabled for a short period to allow for cleaning.
- Siphonic trap refill mode. When activated this allows a small flush after every flush to refill the siphonic trap.

4. Usage advice and specification

Minimum working pressure*: 0.5 bar. *Working or dynamic pressure is measured when water is flowing.

NOTE:
The minimum working pressure refers to the pressure required to operate the valve. Higher pressure may be required for an effective flush, depending on the bowl and sparge outlet design.

Maximum pressure: 6 bar

NOTE:
When using the Direct Flush valve from a mains water supply, the pressure may be higher than is suitable for the design of the sparge or bowl which may cause splashing to occur. In such cases a pressure reducing valve on the supply may be required to reduce the pressure as necessary.

Back siphonage protection: Class 5, Type DC

Cleaning: Clean with soap and water only.

Lens care: Infrared lens can be polished with a soft cloth.

Power requirements: Either 6V from 4 x alkaline AA (LR6) batteries or 6V DC regulated from mains transformer (1A fused spur required).

Default settings

Sensor range: ~50cm

Flush time: 7 seconds

Flush delay: 2 seconds

Electronic specification for Mains transformer DMA55

Control classification: Independent

Output: 6V=0.33A (2W)

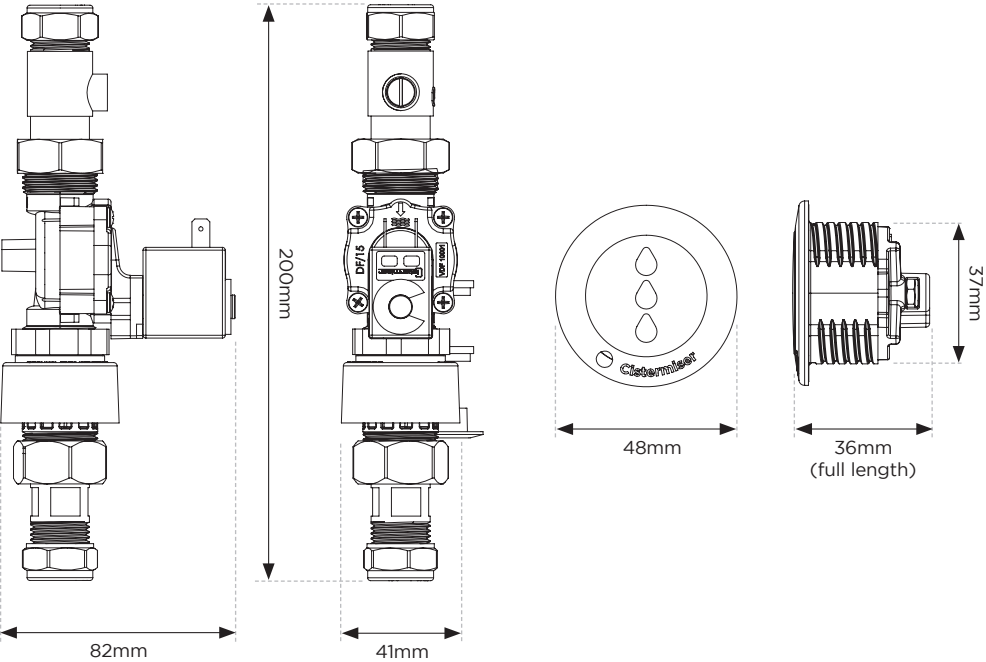
Rated temperature range: 0-40°C

Ingress protection: IP65

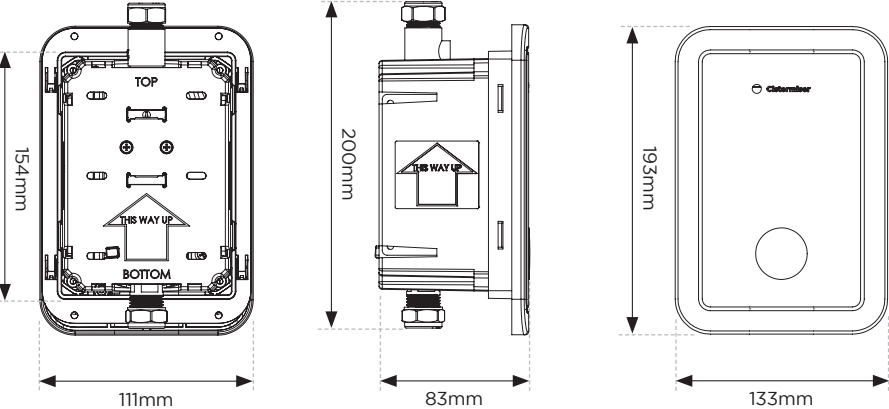
Input: 100-250V AC 50/60Hz 1A MAX

5. Component dimensions

DFD



DFA



6. Advanced settings guide

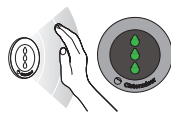
Direct Flush Accessible and Discreet Carry out only if settings need to be changed.

1 Disconnect power, wait for 5 seconds and reconnect.

2 When flashing triple **amber**.



Place hand 4-6cm from sensor until constant triple **green** LEDs, then remove hand.



You are now in configuration mode

3 If a hand is not placed over the sensor, it will go into normal operation mode.

Sensing range of adjustment

A Wait for x1 triple **red** flashing LED to enter sensing range mode.



x1

B Briefly place your hand in front of the sensor until triple **green** LEDs flash slowly. Range configuration mode will then be ready.



C Stand at the distance from the sensor you would like to set as maximum range. Wait 8 seconds until constant triple **green** LEDs shows.



Sensor distance is now set.

Flush duration adjustment

A Wait for x2 triple **red** LEDs to enter flush duration mode.



x2

B During the triple **red** flashing, briefly place your hand in front of the sensor. The valve will start to flush and triple **green** flashing LEDs will be seen. Hold hand steady.



C When the valve has flushed for the desired flush time, move your hand out of the line of sight of the sensor and triple **green** LEDs will show. The water will cease to flow and the flush time will be set. It is recommended that this be set to a time that allows the trap to be refilled.

4 After configuration the LEDs will flash triple **amber**, giving opportunity to re-enter configuration mode.



Sensor LED Glossary

* **Amber** LED = Configuration

Flush -
2 **green** LEDs single flash once per second



Presence detected -
Single central **green** flash once every 3 seconds



Low battery/power fault -
1 **red** LED single flash once per second



Scratched lens/blocked sensor -
3 **red** LEDs single flash once per second



Solenoid or valve failure (Call Cistermiser for advice) -
2 **red** LEDs single flash once per second













Sensor uncalibrated -
1 **red** LED single flash 4 times per second

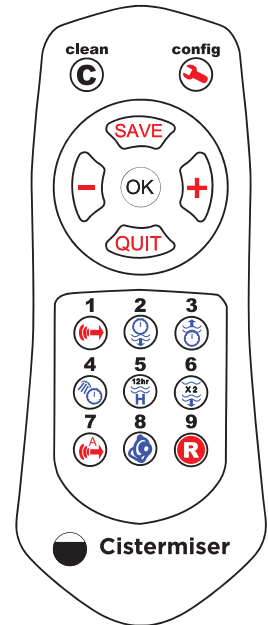


7. Infrared Configuration Unit (ICU) guide

NOTE: Not supplied but available from Cistermiser or any major plumbing merchant.

Button descriptions

- C** Activates cleaning mode
 -  Activates ICU configuration mode
 - Decreases setting
 - +** Increases setting
 - OK** Checks the setting being altered
 - SAVE** Saves changes and exits ICU configuration mode
 - QUIT** Quits ICU configuration mode without saving changes
- 1**  Configures sensor range
 - 2**  Configures flush time
 - 3**  No function
 - 4**  No function
 - 5**  12-hour hygiene cycle activation
 - 6**  No function
 - 7**  Autorange setting of sensor range
 - 8**  Siphonic trap refill activation
 - 9**  Reset to default factory settings



Inserting and replacing batteries

The ICU uses 2 AAA or LR03 Alkaline batteries, these must be installed before use.

Always use new batteries of the same type. Install as indicated in the battery compartment on the rear of the ICU.

NOTE:

Batteries should be replaced when the signal of the ICU becomes weak and it becomes difficult to activate either cleaning or configuration mode.

Activating cleaning mode


Cleaning mode disables normal operation for cleaning for a timed 30 seconds.

In order to activate cleaning mode with the ICU, it must be pointed at the sensor of the selected washroom product. Activation is

most effective when the **C** clean button is held down as the ICU is brought close to the sensor. It can take up to 3 seconds for the product to sense the ICU.

When the washroom product is in clean mode, the sensor flashes green once a second.

Entering configuration mode

Point the ICU towards the Direct Flush sensor and press the configuration  button. LEDs will flash **amber**. Activation is most effective when the configuration button is held down as the ICU is brought close to the sensor.

It can take up to 3 seconds for the product to sense the ICU. The Direct Flush will return to normal operation if there are no button presses for 30 seconds.



Direct Flush configuration

The ICU can adjust/activate the following settings on the Direct Flush: sensor range; flush time; 12hr hygiene flush and siphonic trap.

The product must always be put into ICU configuration mode (see page 13) before any setting can be configured.

Configuring sensor range

Point the ICU at the Direct Flush sensor and press the 1  sensor range button (the sensor blinks green).

Decrease or increase the sensor range by pressing the  and  buttons respectively. The sensor blinks red when the min or max value is reached.

Press the  button to check the sensor range setting - the sensor displays the current setting by flashing green, see table.



Number of flashes	1	2	3	4	5
Range (cm approx)	45	50	55	60	65


Save setting and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

Configuring flush time

Point the ICU at the Direct Flush sensor and press the flush time button 2  (the sensor blinks green).

Decrease or increase the flush time by pressing the  and  buttons respectively. The sensor blinks red when the min or max value is reached.


Press the  button to check the flush time setting - the sensor displays the current setting by flashing green, see table.




Number of flashes	1	2	3	4	5
Flush time (seconds)	3	5	7	9	11

Save setting and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

Activating the 12hr hygiene flush cycle

Point the ICU at the Direct Flush sensor and press the 5  hygiene cycle button (the sensor blinks green).

Pressing the  and  buttons switches the hygiene flush function on or off respectively. Press the  button to check the setting - the sensor flashes green once if function is off or twice if it is on.

Save setting and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

Configuring sensor range using the autorange function


Point the ICU at the Direct Flush sensor and press the 7  autorange button.




Immediately stand clear of the sensor. Sensor blinks green for 5 seconds, then a steady green when setting complete. The sensor measures the background reflections and sets the sensor range to an appropriate setting.

Save setting and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

Activating the siphonic trap refill function


Point the ICU at the Direct Flush sensor and press the 8  siphonic trap button (the sensor blinks green).

Pressing the  and  buttons switches the siphonic trap refill function on or off respectively. Press the  button to check the setting - the sensor flashes green once if function is off or twice if it is on.

Save setting and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

Reset to factory settings

Point the ICU at the Direct Flush sensor and press the 9  reset button (the sensor blinks green). This sets all settings to the default factory settings.

Save all settings and exit ICU configuration mode by pressing the  button.

Exit without saving by pressing the  button.

8. Frequently asked questions

No water

The sensor is not flashing at all when the user's body is in the sensing range	<p>Ensure the power supply is connected. If mains power is being used through the mains adaptor check that the mains adaptor is working by reverting to the battery pack. Remove the mains adaptor when using batteries.</p> <p>Sensor has been deactivated by the anti-vandal feature. (Sensor detect presence for more than 30 minutes). Disconnect power for 2 minutes.</p>
Sensor is flashing single top red LED slowly, or not at all when a hand is placed in front of it	<p>Low or no battery power; change batteries. If operated by mains power, contact Cistermiser.</p>
Sensor is flashing bottom two green LEDs indicating a solenoid or valve issue	<p>Ensure the water supply is reaching the valve and you have a good working pressure. (min 0.5 - max 6 bar).</p> <p>Blockage. Ensure the filter on the inlet side of the valve is clear.</p>

Continuous flow of water from the outlet or dripping

The sensor is not flashing at all when in the sensing range	<p>Ensure the power supply, or batteries, are functioning. Check all electrical connections.</p>
Water is flowing regardless of user activity	<p>Ensure the arrow on the valve is pointing in the direction of water flow.</p> <p>Ensure the water pressure is not above the maximum working pressure of 6 bar.</p> <p>Debris or scale in the diaphragm: isolate water supply to the valve and remove wires attached to the solenoid. Undo the 4x screws and remove. This will give you access to the diaphragm, (note orientation of diaphragm when reinstalling), flush under cold water and visually inspect. Re-install. Do not open too many times and discard any plastic swarf.</p> <p>Diaphragm has been damaged by debris. Carry out procedure for. "Debris or scale in diaphragm", visually inspect then call Cistermiser for further instructions.</p>

Water is flowing from the DC pipe interrupter

The sensor functioning normally	The DC interrupter is in backflow condition or there is a blockage or restriction downstream of the valve. See key design and installation points on page 4. Flow regulators are included to control the flow of water into the urinal system. (See page 4)
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Splashing

Urinal bowls	Some urinals are not designed for the high pressures of mains water supplies and splashing may occur. In such cases a pressure reducing valve (not supplied) is required on the supply side of the Cistermiser valve to reduce the pressure as necessary. Flow regulators are included to control the flow of water into the urinal system. (See page 4)
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Other issues

Sensor flashing red middle LED 4 times per second	Sensor uncalibrated. Call Cistermiser for advice.
Sensor flashing single red top LED	Low or no battery power. Change batteries. If operated by mains power, check wiring then contact Cistermiser.
Sensor flashing triple red LEDs	Sensor covered or heavily scratched. Uncover or polish out scratches.
Sensor flashing double red top LEDs	Solenoid/wiring fault. Call Cistermiser for advice.

Cistermiser product warranty and extended warranty

Cistermiser products are guaranteed for 12 months from the date of manufacture.

The guarantee is for faulty products and parts only: there is no labour warranty. If you believe your product is faulty, please either contact Cistermiser directly on **0118 969 1611** or at **support@cistermiser.co.uk**, with a photograph and the serial number, to help diagnose the cause of the problem.

The warranty on Cistermiser products can be extended within one year of date of manufacture, at no cost, to three years from the date of installation (see details on page 17).

Please make a note of the serial number and take a photograph of the installation before you leave site.

Commissioning check-list

Direct Flush Accessible/Discreet

3

YEAR

extended warranty

The warranty on Cistermiser products can be extended within one year of date of manufacture, at no cost, to three years from the date of installation. Once the valve has been installed, complete the product commissioning checklist below to demonstrate compliance with the installation instructions. Email a photograph of this completed form to warranty@cistermiser.co.uk or post to **Cistermiser, Unit 1, Woodley Park Estate, 59-69 Reading Road, Woodley, Berks, RG5 3AN.**

Product serial number

Installation address

Installer's name

Telephone number

Email address

No	Activity	Checked	Date
1.	Flush pipework prior to installation.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Ensure that the urinal bowl is suitable for mains flush or use the D.C pipe interrupter.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Check valve orientation: valve should be typically more than 500m from the urinal (see installation instructions).	<input type="checkbox"/>	<input type="checkbox"/>
4.	Ensure water supply working/dynamic pressure is between 0.5 - 6 bar.	<input type="checkbox"/>	<input type="checkbox"/>
5.	Install an isolation valve upstream of solenoid valve.	<input type="checkbox"/>	<input type="checkbox"/>
6.	Check pipework from valve to urinal is appropriately sized and restriction free.	<input type="checkbox"/>	<input type="checkbox"/>
7.	Ensure a low restriction sparge is fitted.	<input type="checkbox"/>	<input type="checkbox"/>
8.	Check flow direction through valve.	<input type="checkbox"/>	<input type="checkbox"/>
9.	Check sensor is mounted in correct position (see installation instructions).	<input type="checkbox"/>	<input type="checkbox"/>
10.	Ensure label is removed from sensor before connecting power.	<input type="checkbox"/>	<input type="checkbox"/>
11.	Check electrical connections: sensor to solenoid, orange to orange, blue to blue. Ensure mains power is connected, wire power adaptor to 1A fused spur.	<input type="checkbox"/>	<input type="checkbox"/>
12.	Check operation: adjust sensor range and flush time if necessary.	<input type="checkbox"/>	<input type="checkbox"/>
13.	Ensure flow rate through the valve is matched to the sparge to prevent water coming out of the D.C pipe interrupter.	<input type="checkbox"/>	<input type="checkbox"/>

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Cistermiser only use papers from sustainable sources.

DF/27 C-05