

direct flush urinal control valve

installation guide



1 Introduction

The cost effective solution to maximise urinal hygiene and water economy.

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.

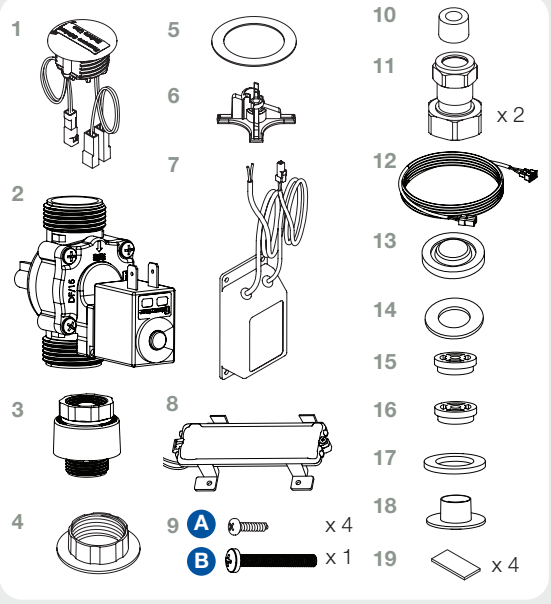
The **direct flush** detects users at the bowl and flushes when the user departs. If a user is detected while the valve is flushing the **direct flush** will pause the flush to prevent splashing of the user and save water: this is called the “flush arrest” function.

After 12 hours without use the **direct flush** automatically runs a hygiene flush: this feature can be turned off.

direct flush discreet (DFD)
direct flush accessible (DFA)

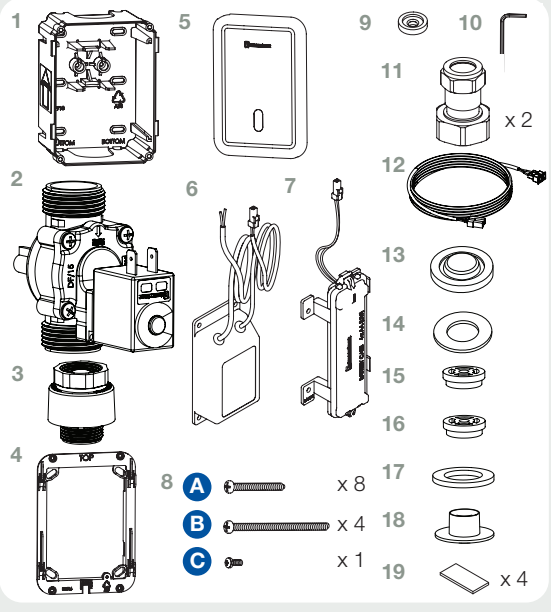
direct flush discreet supplied parts

- 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 adaptor
- 8 Battery case
- 9 Screws
- 10 Screw packer
- 11 15mm pipe fitting
- 12 1.5m cable
- 13 Filter
- 14 Washer
- 15 3lpm flow regulator (brown)
- 16 5lpm flow regulator (yellow)
- 17 Seal
- 18 DC Pipe Interrupter jet
- 19 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 adaptor
- 7 Battery case
- 8 Screws
- 9 Shoulder washer
- 10 2mm allen key
- 11 15mm pipe fitting
- 12 1.5m cable
- 13 Filter
- 14 Washer
- 15 3lpm flow regulator (brown)
- 16 5lpm flow regulator (yellow)
- 17 Seal
- 18 DC Pipe Interrupter jet
- 19 Adhesive pads



2 Installation

Important notes and guidelines: 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 overleaf). 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 pressure 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.

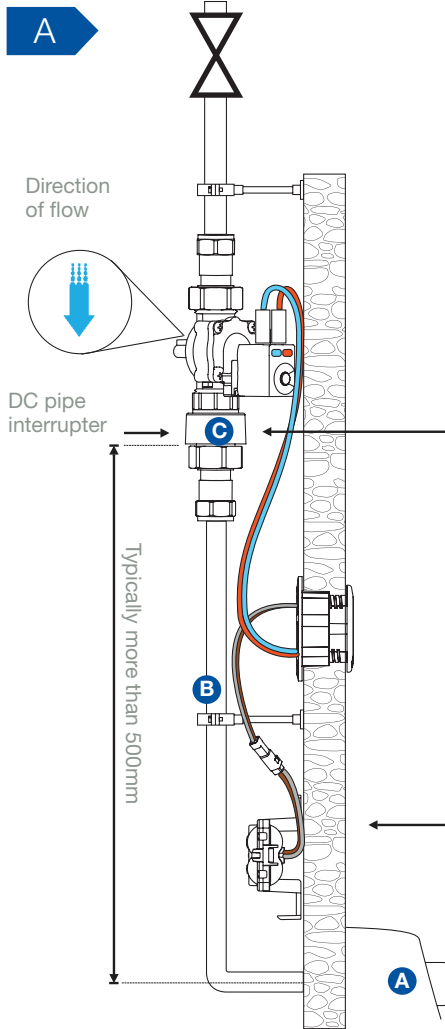
how to install a DC pipe interrupter correctly

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 overleaf)
 - 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 pressure.
 - 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 10µm 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



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**.

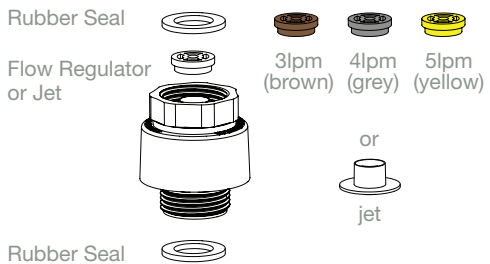
IMPORTANT

Read installation guidelines on page 4

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 1.5m extension cable is supplied.

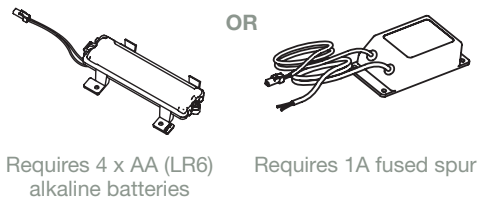
When installing the valve it is good practice to ensure there is an accessible isolation valve upstream of the valve.

DC pipe interrupter is supplied with:

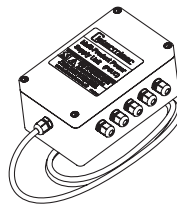


In some circumstances a squeak maybe heard when the valve closes. If so, the DC pipe interrupter jet may be used to reduce this.

Power options



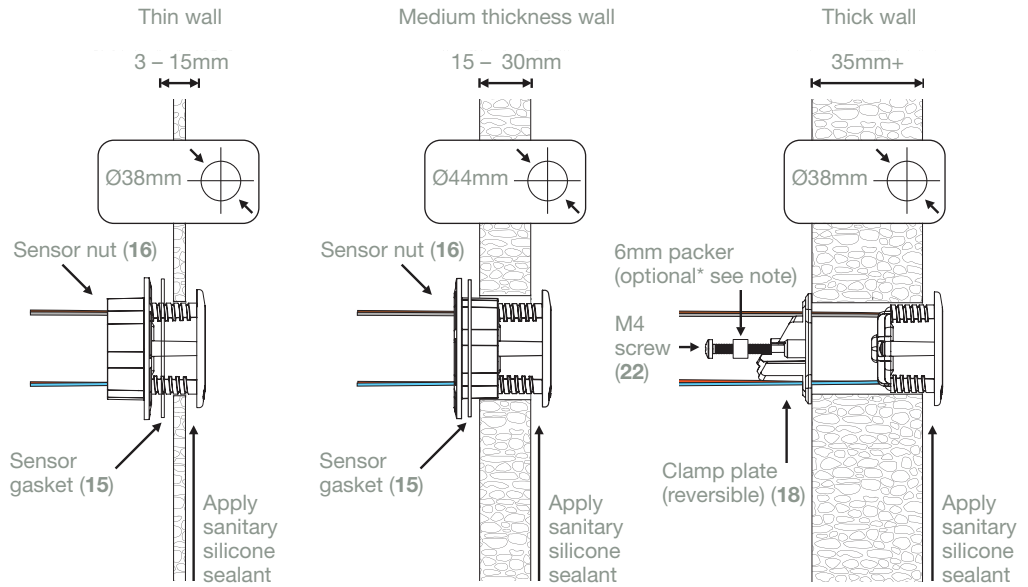
OR



Multi product power supply unit (not supplied)
(suitable for powering up to 20 units)

sensor installation

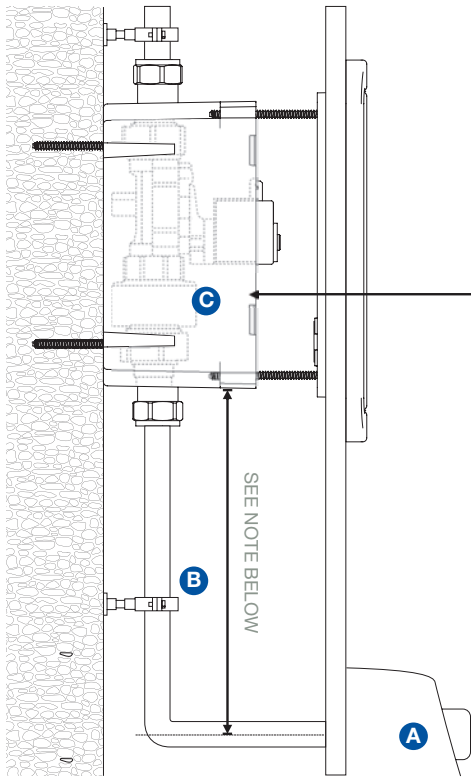
Install sensor vertically above the urinal.



NOTE:

*If wall thickness is under 35mm use packer to prevent screw causing damage to sensor

DFA – option 1 wall mounted



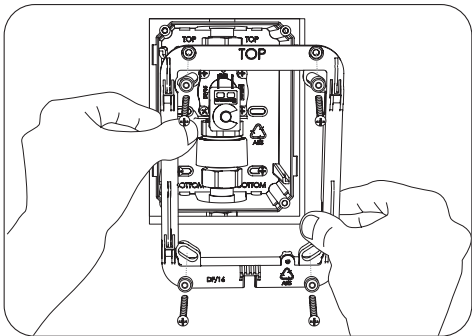
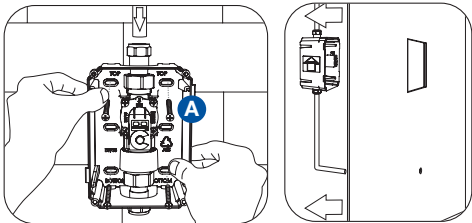
DC pipe interrupter is supplied with:

Rubber Seal

Flow Regulator or Jet

Rubber Seal

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

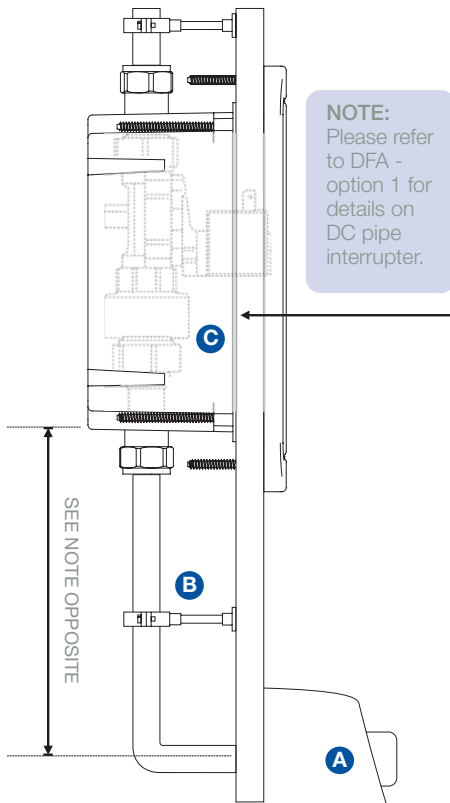


The DC pipe interrupter is supplied with 3 flow regulators. Select the appropriate flow rate to match your rate through the sparge **A** and sufficient volume of the pipe **B** to prevent overflow from the DC pipe interrupter **C**

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.

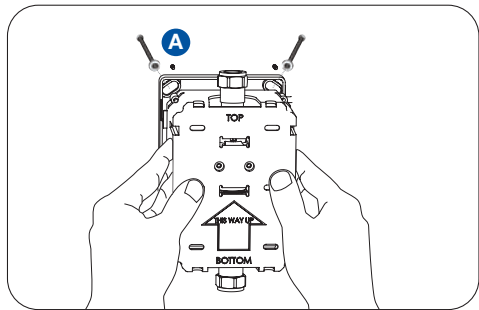
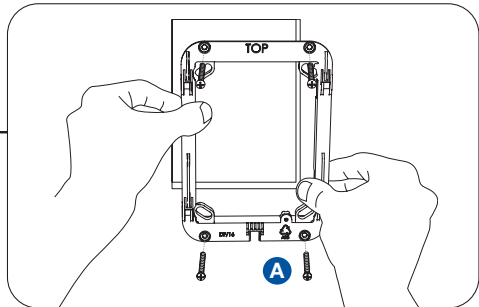
NOTE:
4 long screws **B** are provided to allow for flexible fixing of the mount box and clamp frame, if required.

DFA – option 2 panel mounted



NOTE:
Please refer to DFA - option 1 for details on DC pipe interrupter.

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.



DFD & DFA - fitting sensor plate

NOTE:
See section 3 - power connections

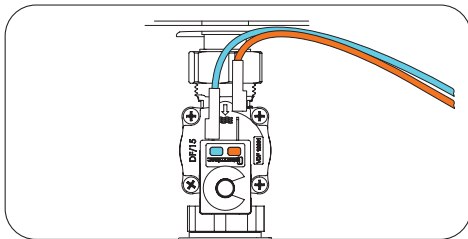
3 Power connections

NOTE:

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

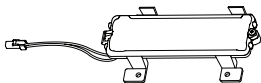
Batteries: Open the battery case and fit 4 Alkaline AA (LR-6) batteries as indicated. Reseal and fasten into place on the panel using screws **A** or with the tape pads (for DFA installations slide into the mount box).

If using the mains adaptor, fasten into place on the panel in a dry location using screws **A** 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).

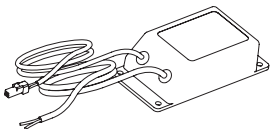


Power options

Battery case requires 4 x AA alkaline batteries



Mains adaptor requires 1A fused spur



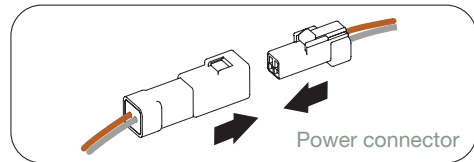
Connect the spade connectors from the sensor (DFD) or sensor plate (DFA) to the solenoid terminals – take care to connect the wires according to the colour coding on the label. If these are not long enough they can be extended by up to 1.5 metres. (Extension cable supplied with DFD).

electrical connection:

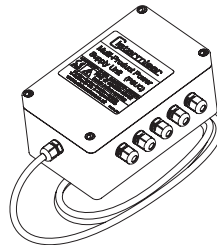
Connect the power connector from the sensor (DFD) or sensor plate (DFA) to the mains adaptor, or in the case of a battery powered installation, the battery case.

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.



Multi product power supply unit (not supplied, contact Cisterniser for further details). Suitable for powering up to 20 units



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 & specifications

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 working 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.

factory settings

Range: circa 50cm.

Flush time: 7 seconds.

Flush delay: 2 seconds.

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

Normal battery life: 2 years under typical usage conditions. A single red flashing of the LED indicates that the batteries are low and need to be replaced.

Cleaning: Clean with soap and water only.

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

electronic specification

Control classification – DFD: Independent.

Control classification – DFA: Independent.

Maximum load: 2W 0.33A

Rated temperature range: 0-40 deg C.

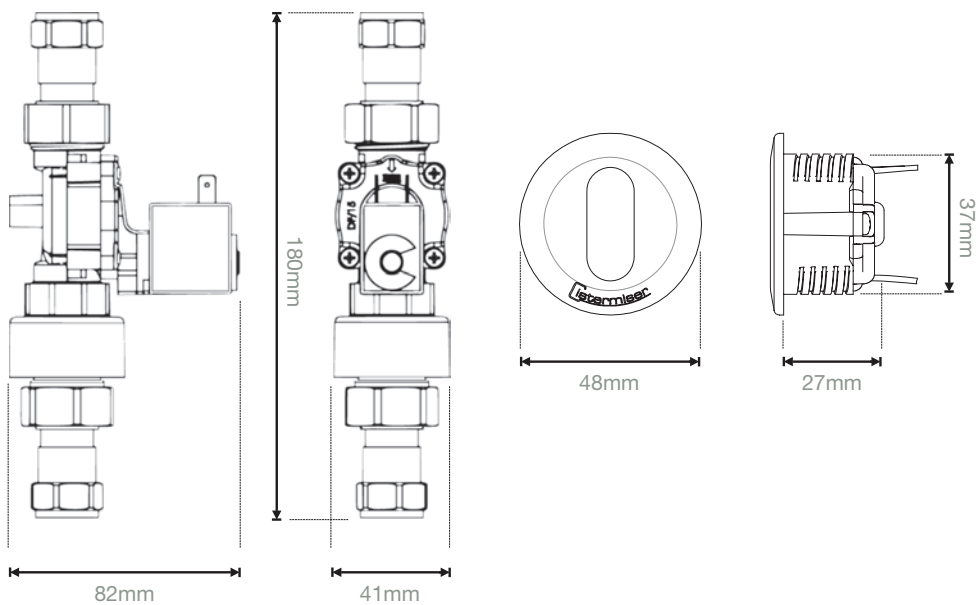
Action classification: Type 1.Y.

Pollution classification: Degree 1.

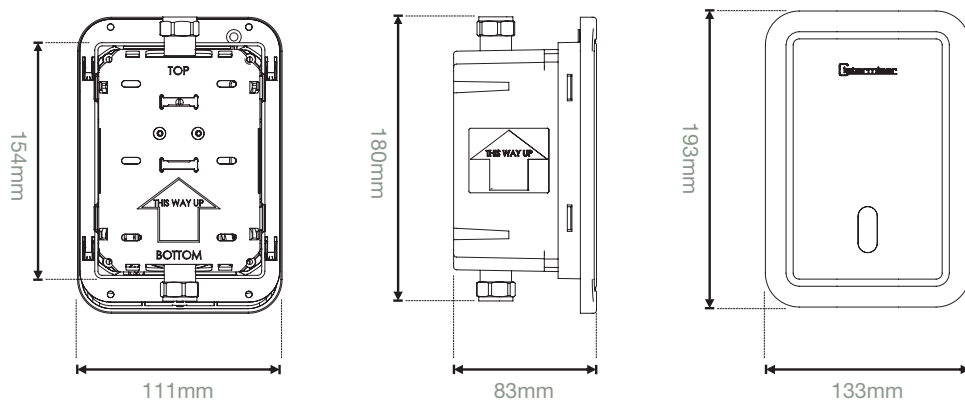
Ingress protection: IP65.

5 Component dimensions

DFD



DFA



6 Advanced setting 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 amber**.



Place hand 4-6cm from sensor until **constant green**. Then remove hand.



- 3 You are now in configuration mode

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

Sensing range of adjustment

- A Wait for **single red flashing** LED to enter sensing range mode.



- B Briefly place your hand in front of the sensor until the **green LED flashes slowly**. Range configuration mode will then be ready.



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



Sensor distance is now set.

Flush time adjustment

- A Wait for **double red flashing** LED to enter flush time.



- B During **double red flashing** briefly place your hand in front of the sensor. The valve will open and start the flush. A **green flashing** will be seen.



- C When the water has run for the desired flush time, move your hand out of the line of sight of the sensor. The water will cease 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 unit will **flash amber** giving opportunity to re-enter configuration mode.



7 Infrared Configuration Unit (ICU) guide

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

button descriptions

-  Activates cleaning mode
-  Activates ICU configuration mode
-  Decreases setting
-  Increases setting
-  Checks the setting being altered
-  Saves changes and exits ICU configuration mode
-  Quits ICU configuration mode without saving changes
- 1**  Configures sensor range
- 2**  Configures flush time
- 5**  12 hour hygiene cycle activation
- 7**  Autorange setting of sensor range
- 8**  Siphonic trap refill activation
- 9**  Resets 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  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.

activating ICU configuration mode

In order to activate ICU configuration mode with the ICU, it must be pointed at the sensor of the selected washroom product. 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 washroom product 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 left) 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 **OK** 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	53	56	58

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

Exit without saving by pressing the **QUIT** 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 **SAVE** button.

Exit without saving by pressing the **QUIT** 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 **OK** 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 **SAVE** button.

Exit without saving by pressing the **QUIT** 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 **OK** 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 **SAVE** button.

Exit without saving by pressing the **QUIT** 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 **OK** 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 **SAVE** button.

Exit without saving by pressing the **QUIT** button.

reset to factory settings

Point the ICU at the **direct flush** sensor and press the **9** (R) 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 **SAVE** button.

Exit without saving by pressing the **QUIT** button.

8 Frequently asked questions

no water

The sensor is not flashing at all when the user's body is in the sensing range

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.
Sensor has been deactivated by the anti-vandal feature. (Sensor detect presence for more than 30 minutes).
Disconnect power for 2 minutes.

Red flash once every second

Low or no battery power; change batteries. If operated by mains power, contact Cistermiser.

The sensor is flashing green twice a second after the user activates sensor

Ensure the water supply is reaching the valve and you have a good working pressure. (min 0.5 - max 6 bar).

Blockage. Ensure the filter on the inlet side of the valve is clear.

continuous flow of water from the outlet or dripping

The sensor is not flashing at all when in the sensing range

Ensure the power supply, or batteries, are functioning: check all electrical connections.

The sensor is flashing green once a second

Ensure the arrow on the valve is pointing in the direction of water flow.

Ensure the water pressure is not above the maximum working pressure of 6 bar.

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.

Diaphragm has been damaged by debris. Carry out procedure for "Debris or scale in diaphragm", visually inspect then call Cistermiser for further instructions.

water is flowing from the DC pipe interrupter

The sensor is flashing green twice a second after the user activates sensor

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)

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)

other alarms

Double red flash

Faulty wiring. Check wiring carefully.

Faulty solenoid. Call Cistermiser for advice.

Red flash once every second

Low or no battery power. Change batteries. If operated by mains power, contact Cistermiser.

Red flash twice every 3 seconds

Sensor covered or heavily scratched.
Uncover or polish out scratches.



cistermiser product warranty and extended warranty

Cistermiser products are guaranteed for twelve 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 warranty@cistermiser.co.uk, with a photograph and the serial number, to 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 by completing the enclosed warranty card or at www.cistermiser.co.uk/warranty. Please make a note of the serial number and take a photograph of the installation before you leave site.

Cistermiser
water management at its best



0118 969 1611 | sales@cistermiser.co.uk | www.cistermiser.co.uk

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