sensazone

installation guide

1 System requirements

sensazone is an intelligent PIR sensor operated system which controls the water supply and the light and fan functions in washrooms.

The system features can be used in the following scenarios

| Scenario	Required control	Required products
1	To control the water supply to one zone, room or area of a washroom (with a single/common entrance).	**sensazone** core product
2	To control the water supply and lights and fans to one zone, room or area of a washroom (with a single/common entrance).	**sensazone** core product A **sensazone** Interface Module A **sensazone** Light and Fan Control
3	To control the water supply to multiple areas of a washroom simultaneously. Examples include, a washroom divided into different areas and a washroom with two or more entrances.	**sensazone** core product A **sensazone** Interface Module Additional Sensor Kits Additional Valve Kits (where applicable, to a maximum of 3 valves per system)
4	To control the water supply, lights and fans to multiple areas of a washroom (with two or more entrances).	**sensazone** core product A **sensazone** Interface Module A **sensazone** Light and Fan Control Additional Sensor Kits Additional Valve Kits (where applicable, to a maximum of 3 valves per system)

sensazone core - supplied parts

1 Solenoid valve**

2 2 x 15mm or 22mm compression fittings*

3 Inlet filter*

4 Fibre washer*

5 Sensor assembly consisting of sensor
   unit and backplate

6 Mains power adaptor

7 2 x universal fixing plug

8 2 x #6 x 1 1/2" screws

9 4 x #4 x 1/2" screws

10 4 x sticky pads

11 Extension cable to mains power adaptor
   (1.25m)

12 Extension cable to solenoid valve (3m)

** Solenoid valve either 15mm, 22mm, 1" or 11/4"
* Only supplied with 15mm or 22mm
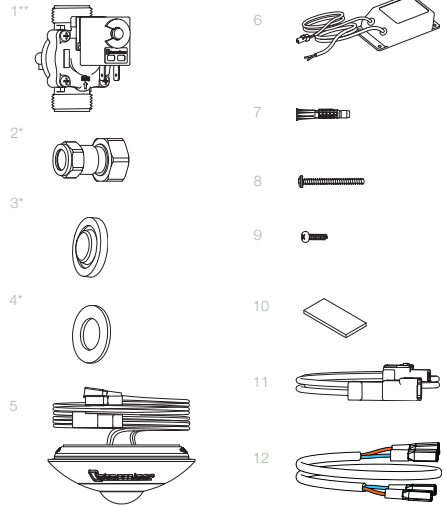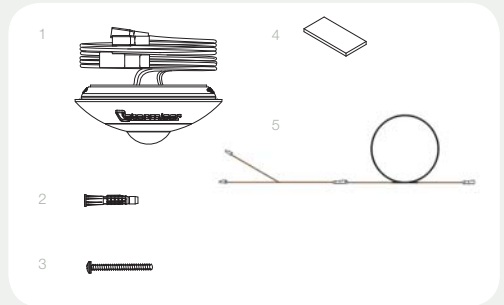
sensazone Interface Module (SZ/IF) - supplied parts

1 sensazone Interface module
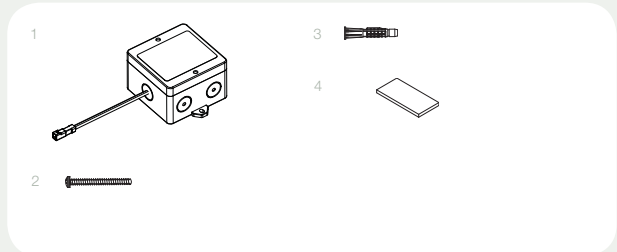
2 Sticky Pads x 2

3 Infrared Control Unit (ICU)
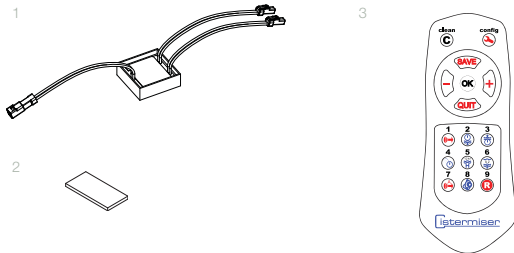
Additional Sensor Kit - supplied parts

1 Sensor assembly consisting of sensor
   unit and backplate

2 2 x universal fixing plug

3 2 x #6 x 1 1/2" screws
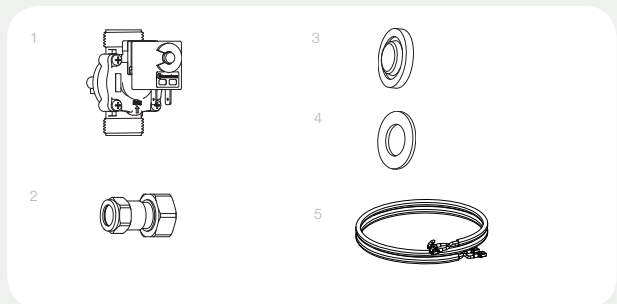
4 4 x sticky pads

5 Extension 'Y' Cable

sensazone Light and Fan Control (SZ/LFC) - supplied parts

1 sensazone Light & Fan Control

2 Screws x 2

3 Universal fixing plug x 2

4 Sticky Pads x 4

Additional Valve Kit - supplied parts

1   Solenoid valve**

2   2 x 15mm or 22mm
    compression fittings*

3   Inlet filter*

4   Fibre washer*

5. Piggy back cable

** Solenoid valve either 15mm, 22mm, 1" or 11/4"
* Only supplied with 15mm or 22mm

2 Guidance on system layout

Prior to installing any components, it is important to confirm the required location of the sensor(s). Once the location(s) have been confirmed, refer to Section 3 to set up the installation.
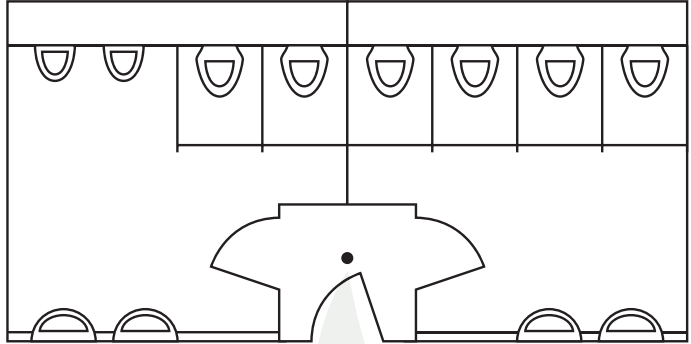
Example layout for single (common) entrance:

Scenario 1 and Scenario 2

When occupancy is detected in the common entrance, the water, lights and fans will be activated in all areas of the washroom.
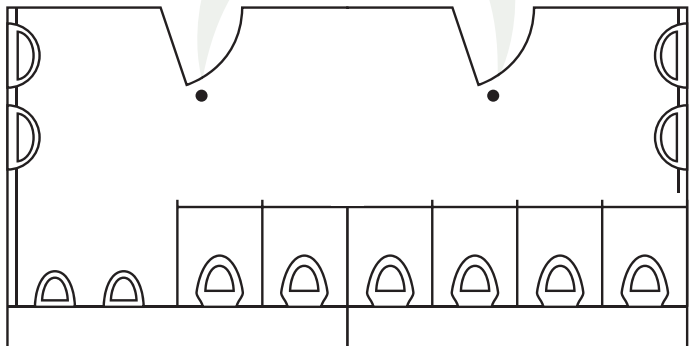
MINIMUM 1 METRE

MINIMUM 1 METRE

DOOR

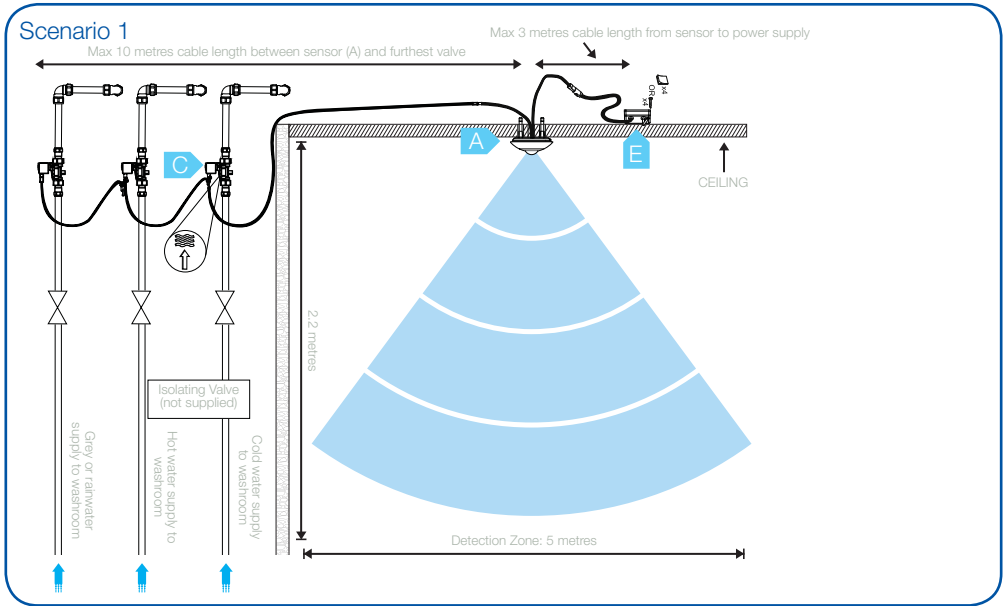## Example layout for multiple entrances:

Scenario 3 and Scenario 4

When occupancy is detected at one of the entrances, the water, lights and fans will be activated in all areas of the washroom.
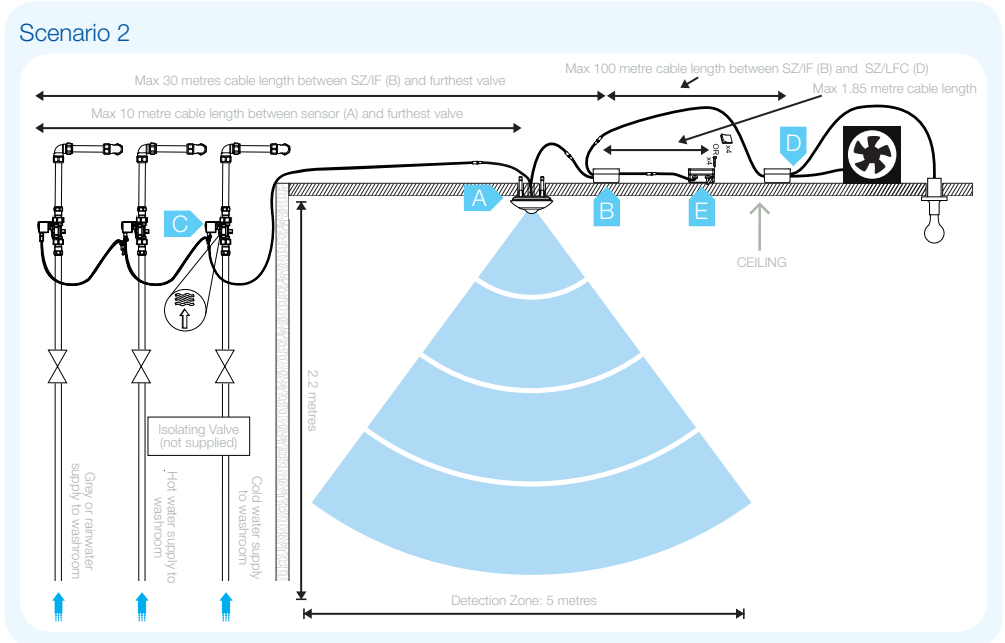
3 Installation schematic

Scenario 1

Max 3 metres cable length from sensor to power supply

Max 10 metres cable length between sensor (A) and furthest valve

C

A

E

CEILING

2.2 metres

Isolating Valve
(not supplied)

Grey or rainwater
supply to washroom

Hot water supply to
washroom

Cold water supply
to washroom

Detection Zone: 5 metres

Scenario 2

Max 100 metre cable length between SZ/IF (B) and SZ/LFC (D)

Max 1.85 metre cable length

Max 30 metres cable length between SZ/IF (B) and furthest valve

Max 10 metre cable length between sensor (A) and furthest valve

C

A

B

E

D

CEILING

2.2 metres

Isolating Valve
(not supplied)

Grey or rainwater
supply to washroom

Hot water supply to
washroom

Cold water supply
to washroom

Detection Zone: 5 metres

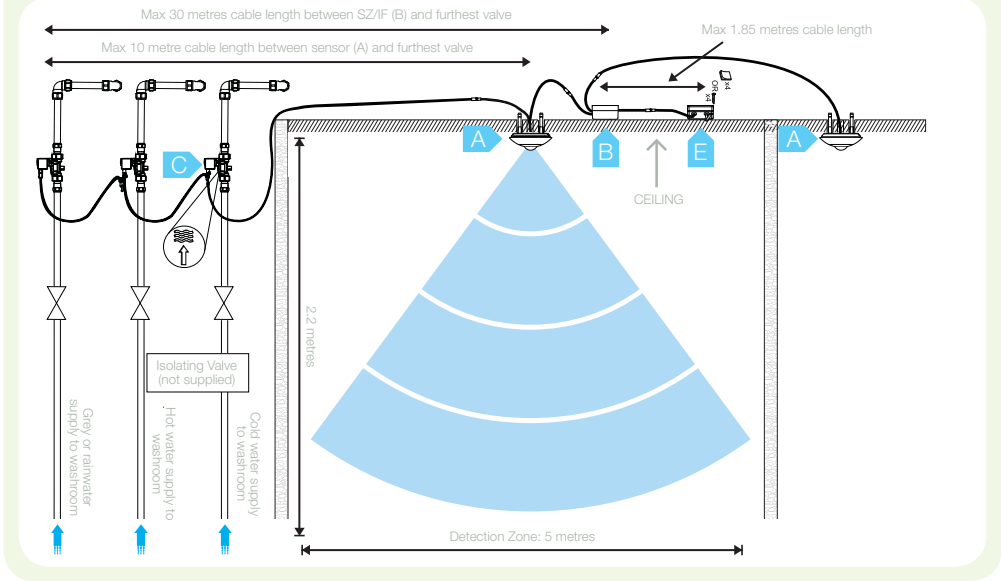A Sensor(s) installation: Refer to page 7 for details

B SZ/IF installation: Refer to page 7 for details

C Valve installation: Refer to page 8 for details

D SZ/LFC installation: Refer to page 8 for details

E Mains power adapter: Refer to page 9 for details
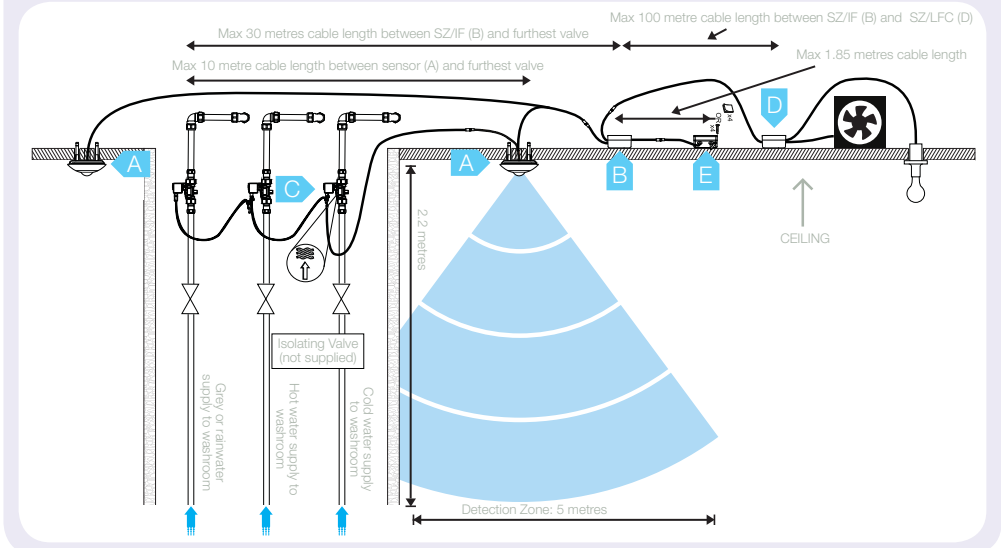
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3 Installation schematic

Scenario 3

Max 30 metres cable length between SZ/IF (B) and furthest valve

Max 10 metre cable length between sensor (A) and furthest valve

Max 1.85 metres cable length

A

C

B

E

A

CEILING

2.2 metres

Isolating Valve (not supplied)

Grey or rainwater supply to washroom

Hot water supply to washroom

Cold water supply to washroom

Detection Zone: 5 metres

Scenario 4

Max 100 metre cable length between SZ/IF (B) and SZ/LFC (D)

Max 30 metres cable length between SZ/IF (B) and furthest valve

Max 10 metre cable length between sensor (A) and furthest valve

Max 1.85 metres cable length

A

A

C

B

E

D

CEILING

2.2 metres

Isolating Valve (not supplied)

Grey or rainwater supply to washroom

Hot water supply to washroom

Cold water supply to washroom

Detection Zone: 5 metres

A Sensor(s) installation: Refer to page 7 for details

B SZ/IF installation: Refer to page 7 for details

C Valve installation: Refer to page 8 for details

D SZ/LFC installation: Refer to page 8 for details

E Mains power adapter: Refer to page 9 for details

A ▶ Sensor(s) installation

NB: A max of 10 sensors can be used per system. Position the sensor(s) at least 1 metre from the entrance(s). If cables are extended 1.5mm^2 cable must be used.

false ceiling

1. Detach the backplate from the sensor unit.
2. Offer the backplate to the ceiling and mark position of holes.
3. Drill 6mm diameter holes and insert Rawlplugs.
4. Drill an additional hole of 10mm diameter between the two 6mm holes as shown here.
5. Screw the base plate to ceiling.
6. Feed the wire through the large (10mm) centre hole and secure the sensor unit to the base plate.
7. Twist sensor unit clockwise into backplate to lock into position.
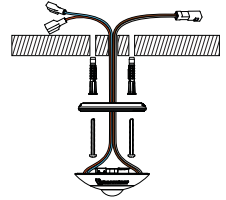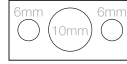
solid ceiling

1. Detach the backplate from the sensor unit.
2. Offer the backplate to the ceiling and mark the position of holes. Pay particular attention to ensure that the 'wire exits' are correctly positioned for your installation.
3. Drill 6mm diameter holes and insert Rawlplugs.
4. Screw base plate to ceiling.
5. Ensure wire is fed through the 'wire exits' as displayed on the sensor. If the wire is required to go out of the same exit ensure that the wire is routed around the sensor as shown in the diagram below.
6. Secure sensor unit to base plate and twist clockwise to lock into position.
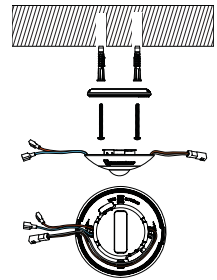
B ▶ SZ/IF Installation

Position the sensazone Interface Module (SZ/IF) in accordance with the following:

1. The cable length from the SZ/IF to the furthest valve must NOT exceed 30m.
2. The cable length from the SZ/IF to the SZ/LFC must NOT exceed 100m.
3. If cables are extended 1.5mm^2 cable must be used.
4. Where necessary use wiring conduit to protect exposed cables.

Connecting to the SZ/IF:

Connect the sensor unit(s) to one of the SZ/IF outputs. When 2 or more sensors are required, use the extension 'Y' cable provided and connect in series as shown.

Connect the SZ/LFC to the SZ/IF output or via one of the additional sensor 'Y' cables. Refer to D for further details on SZ/LFC installation.

C ▶ Valve installation

NB: Valves can be connected to any sensor. Maximum 3 valves per system.

Install valve on to the water supply leading into the washroom (hot, cold and rain/grey water) or as close as practically possible to the entry point to suit the pipe layout.

Single valve installations

Connect the spade connectors from any sensor unit to the solenoid tabs taking care to connect the wires according to the label. The solenoid cables are orange and turquoise. If these are not long enough they can be extended by up to 10 metres.

NB: Should you require extension cables for the solenoid valves please contact Cistermiser technical services.

Multiple valve installations

Up to 3 valves can be connected in parallel using the 'daisy chain' cable provided in the additional solenoid valve kit (AVK). The AVK is available from Cistermiser or any major plumbing merchant. Ensure that like colours are connected. Use the 'piggy back' connectors to loop 2 or 3 valves together as shown opposite.
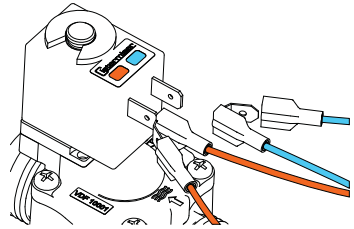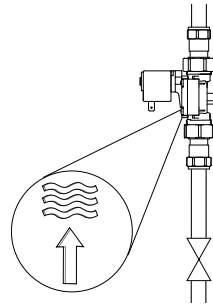
NB: For grey water/rain water harvesting. Ensure adequate filtering is fitted, a 10μm filter is recommended.
NB: For chemical water treatment. If the water system has been treated with chemical dosing, ensure the system is thoroughly flushed before fitting any Cistermiser products. Concentrated chemicals in dead legs can damage the product and result in failure. If the water is treated with Chlorine Dioxide (ClO2), concentration levels are maintained below 5ppm.
NB: As with all water containing products, lime scale in hard water areas can affect the products performance. This can result in maintenance to remove the lime scale as and when required.

D ▶ SZ/LFC Installation

The SZ/LFC must be connected to the SZ/IF; this can be directly to one of the 2 output cables on the SZ/IF or via an extension"Y" cable supplied with an additional sensor kit. If required this cable can be extended up to a maximum length of 100m with 1.5mm² cable.

1. Secure the SZ/LFC to a solid surface either with screws or the sticky pads provided.
2. Remove the top cover and pierce the appropriate rubber cable gland to connect the lights and/or fans. Take care when piercing the gland not to damage the product.

WARNING: Isolate mains supplies to lights and fans

3. Connect the live feed for the lights to the LIGHTS contactor (Ensure load does not exceed 8A)
4. Connect the live feed for the fans to the FAN contactor (Ensure load does not exceed 8A)
5. Replace lid with screws provided before restoring power.

WARNING: This is a functional switching device, and must not be used for safety or maintenance isolation!
WARNING: This device is intended for use with hazardous voltages. The installation and maintenance of this device must be carried out by a qualified electrician in accordance with local wiring regulations. Before installing this device, please read these installation instructions carefully.

NB: Do not install near localised heat source
NB: Where necessary use wiring conduit to protect exposed cables
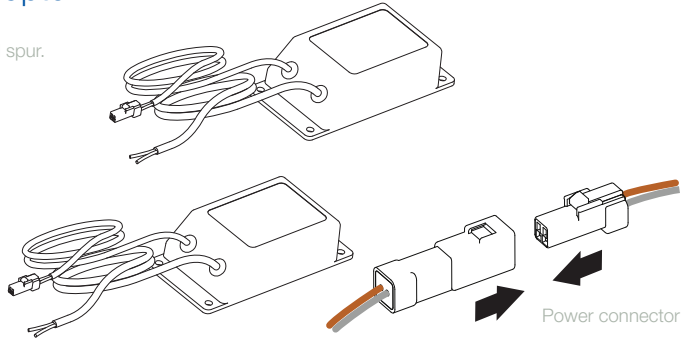
E ▶ Mains power adaptor

Wire the mains adaptor into a 1A fused spur.

Scenario 1

NB: The mains power adapter should not be further than 3 metres from the sensor.

Connect the power connector from the sensor unit to the mains adaptor. Colour conventions are brown for positive and grey for negative.
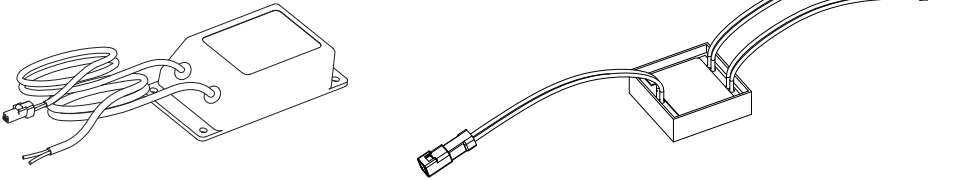
Power connector

Scenario 2   Scenario 3   Scenario 4

Connect the power connector for the SZ/IF to the mains adaptor. The sensor(s) and SZ/LFC are connected to one of the SZ/IF outputs.

NB: The mains power adapter should not be more than 1.85 metres from the SZ/IF.

4 Testing and commissioning

start up operation

When the sensazone is powered up the LED will be a constant amber for up to 15 seconds, after which it will flash amber for 5 seconds. The water supply(ies) into the washroom will now be on for the default run-on time of 15 minutes. The default run-on time can be changed to 30 minutes. See the ICU guide in section 7.

normal operation

When movement is detected, a pulse is sent to open the valve(s) and the LED will flash green once every three seconds when a single sensor is installed. The LED will flash green once a second when installed with SZ/IF. If movement is detected during the run-on time the timers are re-set and will keep the valve(s) open for a further 15 or 30 minutes from the time movement was last detected.

testing

This can be done using the Infrared Configuration Unit (ICU) which is supplied with the SZ/IF - See ICU guide in section 7 – activating walk test.

LED indication on Sensor when connected to SZ/IF:

1 green flash per second	Valve opens / Lights on / Fans on	
Constant red	Valves locked closed	(See Section 7 - activating clean mode)
Constant amber	Valves locked closed for 10 minutes	(See Section 7 - activating clean mode)
Constant green	Valves locked open	(See Section 7 - activating clean mode)
1 red flash per second	Low supply voltage	(Check max cable length)
2 red flashes per second	Solenoid short	(Check wiring and contact Cistermiser)

LED indication on SZ/IF:

Constant green	System idle and OK	
1 green flash per second	Valves open/lights on/fans on	
Red flash	Fault	(Check wiring and contact Cistermiser)

LED indication on SZ/LFC (isolate mains supply to lights and fans before removing cover to reveal status LED)

Constant Green	System idle and OK	
1 green flash per second	Fan on	
2 green flash per second	Fans and lights on	
1 red flash per second	Low supply voltage	(Check wiring and contact Cistermiser)
2 red flashes per second	Comms failure	(Check wiring and contact Cistermiser)

Usage advice and specification

15mm & 22mm valves:	Max pressure 6 bar	Min pressure (dynamic) 0.5 bar
1" and 1.25" valves:	Max pressure 5 bar	Min pressure (dynamic) 0.5 bar
Ambient Temperature Range:	Operating 0 to +40°C	Storage -25 to +40°C

SZ/IF

Rated:	SELV
Maximum number of sensors:	10
Maximum number of valves:	3
Max cable length from SZ/IF to last valve:	30m (1.5mm² cable)
Max cable length from SZ/IF to SZ/LFC:	100m (1.5mm² cable)
Power requirements:	6v DC regulated mains adaptor (supplied with sensazone)
Ingress Protection:	IP54

SZ/LFC

Rated voltage:	240VAC
Rated current:	8A
Making capacity:	16A for 1 second
Breaking capacity:	4000VA
Max wire size:	2.5mmsq
Ingress Protection:	IP54

Circuits must have overload/fault protection of 10A or less.
Circuit protection and wire size must meet local wiring regulations.
NB: Rated Current is for a resistive load - when using inductive/capacitive loads such as fluorescent ballasts, please derate the load to ensure the inrush current does not exceed the contact making capacity.
Warning: This is a functional switching device, and must not be used for safety or maintenance isolation.
Warning: This device is intended for use with hazardous voltages. The installation and maintenance of this device must be carried out by a qualified electrician in accordance with local wiring regulations. Before installing this device, please read these installation instructions carefully.
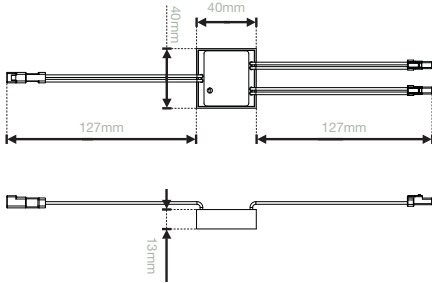
SZ/ASK

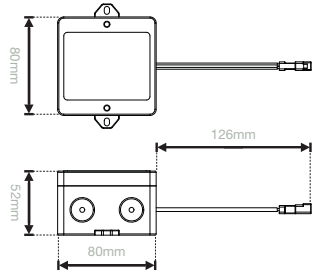| Control classification: | Independent |
Maximum load:	3 x 2W 0.33A (6VDC) EMC emissions tested at load
Rated temperature range:	0-40 deg C
Action classification:	Type 1.Y
Pollution classification:	Degree 1
Ingress protection:	IP55 or IP65 (with respect to room when smooth, non-porous ceiling tile used)

factory settings

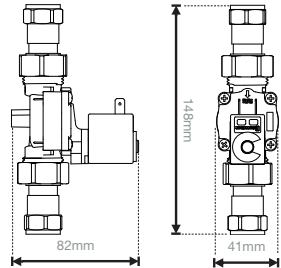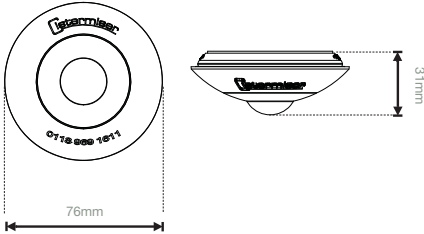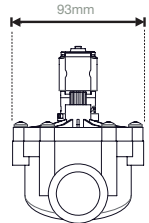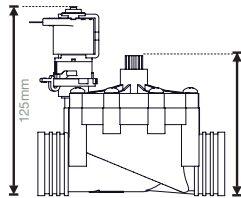| Range: | ~2.2m high x 5m diameter |
Sensitivity setting:	Medium
Hygiene rinse:	On (30 min every 12 hours)
Run-on time:	15 minutes
Additional fan run-on time:	Off (Default)

5 Component dimensions

SZ_IF

40mm
40mm
127mm
127mm
13mm

SZ_LFC

80mm
126mm
52mm
80mm

76mm
31mm

15mm or 22mm valve

148mm
82mm
41mm

1" valve

124mm
125mm
93mm
93mm

1$^1/_4$" valve

130mm
134mm
101mm
93mm

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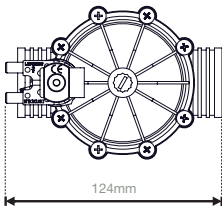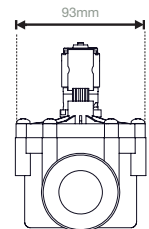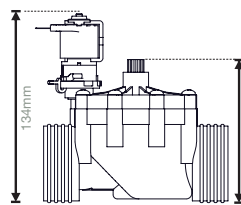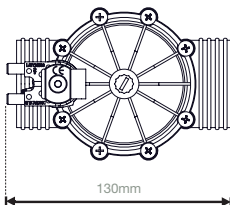
# 6 Advanced settings guide – manual configuration

NB: Manual configuration of the sensor is not available when connected to SZ/IF.

The installer can adjust the run-on time as follows:

1 Disconnect power, wait for 5 seconds and reconnect.

NB: Sensor LED is constant amber for up to 15 seconds while checking ambient light level. If the ambient light level is not sufficient the sensor will automatically go into normal operation. To change settings increase light level in the room or purchase ICU.

2 When flashing amber
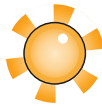
Cup hand over the sensor for 2 seconds only to enter into the run-on time configuration mode. LED will be constant green.

3 You are now in configuration mode

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

Option 1: Run-on time adjustment (15 minutes)
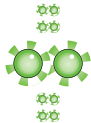
A Wait for single green flashing LED.

B Cup your hand over the sensor for 2 seconds to select this option. The LED will be constant green for 5 seconds.

Option 2: Run-on time adjustment (30 minutes)

A Wait for double green flashing LED.

B Cup your hand over the sensor for 2 seconds to select this option. The LED will be constant green for 5 seconds.

Sequence of programme once option has been selected

A Once your option has been chosen, the LED will be constant green for 5 seconds.

B The LED will then be constant amber for 5 seconds.

C The LED will then flash amber, giving the opportunity to re-enter nfiguration mode.

NB: If a hand is held over the sensor for more than 10 seconds the sensor will go into normal operation mode.

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7 Infrared Configuration Unit (ICU) guide

NB: Supplied with SZ/IF

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

Configures sensor range

Light threshold

Fan run-on time

Configures run-on time

12 hour hygiene cycle activation

R Resets to default factory settings

activating walk test

When the sensazone is in normal operation, point the ICU at the sensazone and press **1**. The sensazone will flash green every time it detects movement. This confirms that the unit is operating as it should be. After two minutes of no movement, the sensor returns to normal operation. The product must be put into ICU configuration mode before any setting can be configured.

activating clean mode

Point the ICU at the sensazone (in normal operation mode) and press the clean button **C**. This will lock the solenoid valve(s) open or closed.

1 - lock open indefinitely (steady green LED)

2 - lock closed indefinitely (steady red LED)

3 - lock closed for 10 minutes (steady amber LED)

4 - normal operation (LED out)

Repeatedly pressing the clean mode will cycle through the 4 states. If a delay of 4 seconds occurs after pressing the clean button, the valve(s) remain in that state. To return to normal operation press the clean button 4 times.

entering configuration mode

Point the ICU towards the sensazone sensor and push the configuration button. 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 sensazone will return to normal operation if there are no button presses for 30 seconds.

configuring sensor sensitivity (range)

Enter into configuration mode. Point the ICU at the sensazone and press the **1**: the sensor blinks green once.

Decrease or increase the sensor range by pressing the − and + buttons respectively. The sensor blinks green every time − or + is pressed and blinks red when the minimum or maximum value is reached.

Press **OK** button to verify the sensor sensitivity setting: the sensor displays the current setting by flashing green.

Single flash: minimum sensitivity setting.

Double flash: medium sensitivity setting.

Triple flash: maximum sensitivity setting.

Save setting and exit ICU configuration mode by pressing the **SAVE** button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the **QUIT** button. The sensor will blink red for 1 second and then constant amber for 3 seconds.

NB: Changing sensor sensitivity will only take effect on the individual sensor, other sensors in the system will keep their range.

configuring occupancy (run-on) time

Enter into configuration mode. Point the ICU at the sensazone and press the **4**: the sensor blinks green once.

Decrease or increase the run-on time by pressing the − and + buttons respectively. The sensor blinks green every time − or + is pressed and blinks red when the minimum or maximum value is reached.

Press **OK** button to verify the sensor range setting: the sensor displays the current setting by flashing green.

Single flash: 15 minute run-on time set.

Double flash: 30 minute run-on time set.

Save setting and exit ICU configuration mode by pressing the **SAVE** button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the **QUIT** button. The sensor will blink red for 1 second and then constant amber for 3 seconds.

NB: When connected to the Interface module changes to occupancy time will be common across all sensors in the network.

activating the 12 hour hygiene cycle

Enter into configuration mode. Point the ICU at the sensazone and press the 5: The sensor blinks green once.

Pressing the ⊖ and ⊕ buttons switches the hygiene cycle function on or off respectively. Press the OK button to verify the setting; the sensor displays the current setting by flashing green.

Single flash: hygiene cycle OFF

Double flash: hygiene cycle ON

Save setting and exit ICU configuration mode by pressing the SAVE button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the QUIT button. The sensor will blink red for 1 second and then constant amber for 3 seconds.

> **NB:** Hygiene flush run-on time is 30min. When connected to the Interface module activating the hygiene cycle will be common across all sensors in the network.

reset to factory settings

Enter into configuration mode. Point the ICU at the sensazone and press the 9 R: the sensor blinks green once. This returns all settings to the default factory settings.

To save the setting and exit ICU configuration mode press the SAVE button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the QUIT button. The sensor will blink red for 1 second and then constant amber for 3 seconds.

To activate the walk test and cleaning mode the sensazone should be in normal operating mode.

configuring light threshold
(when SZ/LFC is connected)

Enter into configuration mode. Point the ICU at the sensazone and press the 2; the sensor blinks green once.

Decrease or increase the light threshold by pressing the ⊖ and ⊕ buttons respectively. The sensor blinks green every time ⊖ or ⊕ is pressed and blinks red when the minimum or maximum value is reached.

Press OK button to verify the sensor light threshold setting; the sensor displays the current setting by flashing green.

Single flash: minimum sensitivity setting.

Double flash: medium sensitivity setting.

Triple flash: maximum sensitivity setting.

Save setting and exit ICU configuration mode by pressing the SAVE button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the QUIT button.The sensor will blink red for 1 second and then constant amber for 3 seconds.

> **NB:** Changing light threshold will only take effect on the individual sensor, other sensors in the system will keep their light threshold settings.

configuring fan run-on time
(when SZ/LFC is connected)

Enter into configuration mode. Point the ICU at the sensazone and press the 3; the sensor blinks green once.

Decrease or increase the fan run-on time by pressing the ⊖ and ⊕ buttons respectively. The sensor blinks green every time ⊖ or ⊕ is pressed and blinks red when the minimum or maximum value is reached.

Press OK button to verify the sensor light threshold setting; the sensor displays the current setting by flashing green.

number of flashes:	1	2	3	4	5
fan run-on time: (minutes)	0	5	15	30	60

Save setting and exit ICU configuration mode by pressing the SAVE button. The sensor will blink green for 1 second and then constant amber for 3 seconds.

To exit without saving press the QUIT button.
The sensor will blink red for 1 second and then constant amber for 3 seconds.

> **NB:** The fan run-on time is in addition to the occupancy run-on time. Changing the fan run-on time will be common across all sensors in the network.

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8 Frequently asked questions

no water at outlets

Sensor LED not lit	Check electrical power supply to the sensor unit and all electrical connections to the valve.
Constant orange LED on sensor	The unit has been left in the locked closed position and will remain in this position for 10 minutes, after which it will go into normal operation. The clean button on the ICU can be pressed to return to normal operation mode.
Constant red LED on sensor	The unit has been left in the locked closed position indefinitely. However, the clean button on the ICU can be pressed to return to normal operation mode.
Sensor LED flashing green	Ensure there is a water supply to valve. Ensure you have the minimum water pressure of 0.5 bar. Check the filter at the inlet side of the valve is clear of any debris. Check all electrical connections between the sensor and valves. Check to ensure the maximum cable runs between the sensor and valve(s) have not been exceeded. There is water in one zone but not all zones. Ensure water pressure does not exceed the maximum working pressure of the valve.

water at outlets at all times

Sensor LED not lit	Check electrical power supply to the sensor and all electrical connections to the valve. If electrical power confirmed please contact Cistermiser for further advice.
Valves not opening or closing when they should	Check all electrical connections and ensure maximum cable runs have not been exceeded. If confirmed contact Cistermiser for further advice.
Constant green LED on sensor	The unit has been left locked in the open position indefinitely. However, the clean button on the ICU can be pressed to return to normal operation mode.

other issues

Single or double red flash on sensor	Check wiring, connections and maximum cable length; if this is correct and the problem persists please contact Cistermiser.
What do I do if the sensor is not sensing occupancy in the washroom?	Conduct a walk test and if required adjust the sensor sensitivity setting as per section 7.

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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 **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.

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