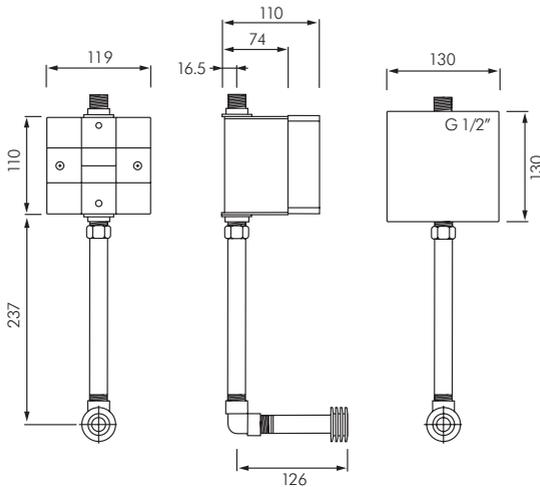


**RA-FS10**  
INDIVIDUAL ELECTRONIC  
URINAL SENSOR

**RAK**  
CERAMICS



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## **DESCRIPTION AND BENEFITS**

The RA-FS10 urinal sensor relies on infrared to detect a user and activate a flushing cycle. No physical contact with the sensor surface is necessary, assuring sanitary protection.

### **Auto Closure**

For the AC powered product, the solenoid will always default to a closed position in case of power failure.

### **Water Saving**

The sensor is equipped with a water volume regulator and can automatically flush the needed amount of water when used.

### **Power Saving**

The battery powered model uses four AA batteries with average consumption of 0.2mW under static and can be used for 2 years, based on 4000 cycles per month.

### **Intelligent**

The sensor is equipped with Fuzzy Logic Controlled software and can automatically adjust the flush amount efficiently in response to the usage frequency and the time of use.

### **Self-cleaning**

When the urinal has not been used for a long time, the sensor will automatically flush every 24 hours to minimise smells and waste trap dry-out.

### **Steady and reliable**

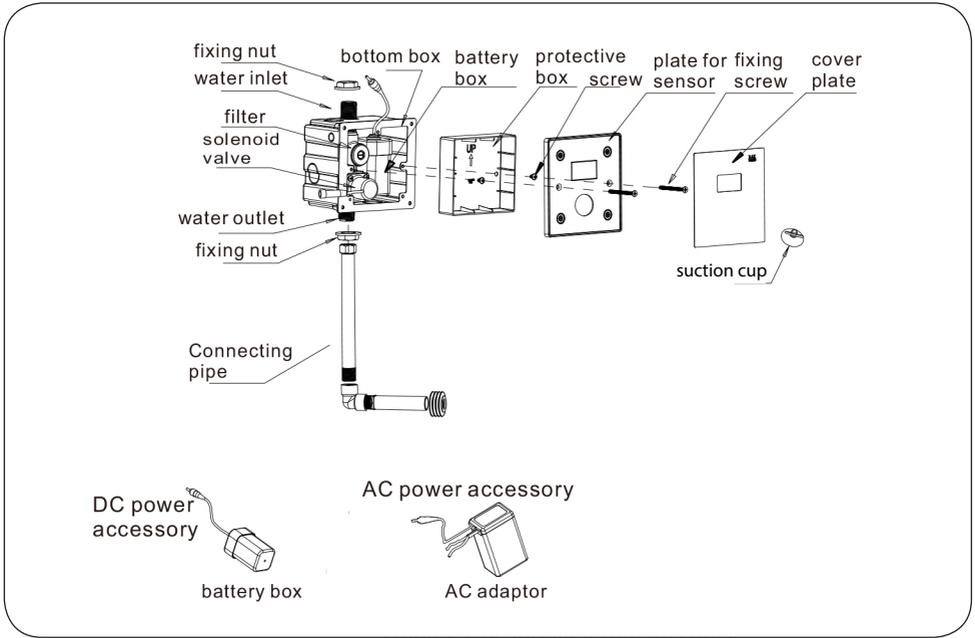
The sensor applies high technology and water proof connections, that ensures reliable function and long life.

### **Easy daily maintenance**

The internal filter is easy to remove for cleaning.

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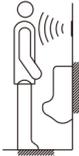
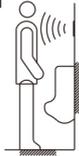
## INSTALLATION INSTRUCTIONS



## SPECIFICATION PARAMETER

Model	FS10RAK	
Power	4 "AA" size alkaline batteries	AC: 100V ~240V/50 ~60Hz (Option)
Working temperature	Environmental temperature:0-45C Water temperature:4-45C	
Battery life	About 2 years based on average 4000 flushing cycles per month.	
Sensing distance	Factory set valve at 65cm (adjustable)	
Pre-flush	There is no pre-flush when the time interval of usage is less than 1 minute.	
Water inlet thread	External thread G1/2	
Water outlet thread	External thread G1/2	
Working pressure	Static pressure range 0.5Bar-8Bar	
Flush volume (factory set) about 0.7L@2.0 Bar dynamic pressure. Pre – Flush Volume about 0.5L @ 2.0 Bar dynamic pressure.		

## USAGE INSTRUCTION

① Sensor	② Prior use flush	③ After use flush	④ Automatic flush
<p>This flushometer identifies the presence of a target within sensing distance.</p> 	<p>The flushometer will automatically flush after 3 seconds' sensing and when usage interval is less than 1 minute, there is no prior use flush.</p> 	<p>After a detected user moves out the effective range of the sensor, the flush cycle is initiated automatically.</p> 	<p>When the urinal has not been used for a long time, the sensor will automatically flush every 24 hours to avoid the deodorizer and the sewer pipe from drying up.</p> 

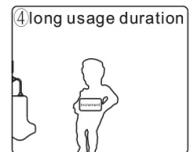
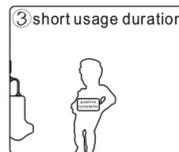
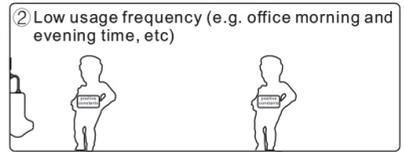
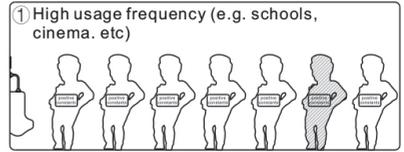
## Fuzzy Logic Controlled Water Volume

### **AFTER USE FLUSH**

#### **I. Automatically adjusts flush volume according to usage frequency.**

The flushometer delivers the ideal flush volume according to the frequency of use;

- When the interval between use is short, which means high use frequency (as per drawing 1), the flushometer will automatically deliver about 0.7L per flush, for the first 5 flushes, and then increase the flush volume to about 1.7L at sixth flush.
- When the interval between use is long, which means low use frequency (as per drawing 2), the flushometer will automatically deliver about 0.7L per flush.



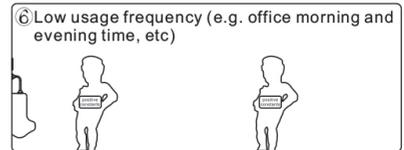
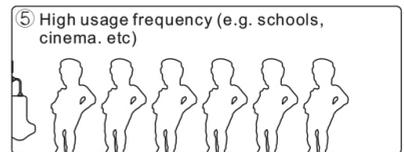
#### **II. Automatically adjusts flush volume according to usage duration.**

- When the interval between uses is normal frequency and the duration of use is short, the flushometer will deliver the normal flush volume, about 0.7L. (as per drawing 3).
- When the interval between uses is high and the duration of use is long, the flushometer will deliver an increased flush volume, about 1.7L. (as per drawing 4).

Note: Above flush volumes are tested under dynamic pressure 200kPa. The flush volume will be different by actual pressure.

### **PRE FLUSH**

- When the interval between uses is short, which means high frequency (as per drawing 5), the flushometer will not pre-flush.
  - When the unused interval is long, which means usage frequency is normal (as per drawing 6), the flushometer will deliver pre-flush, of about 0.5L.
- Note: Above flush volume is tested under dynamic pressure 2.0Bar, the flush volume will be different by actual pressure.

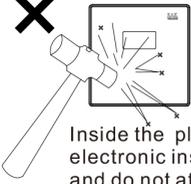


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## USAGE CAUTIONS

The flushometer contains electronic components. Please note the following cautions;

### 1. Do not attack the sensor.



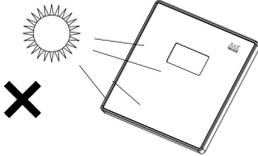
Inside the plate is an electronic instrument and do not attack to avoid malfunction.

### 2. Do not flush the sensor with water.



Do not clean the sensor with water, to avoid electrical troubles.

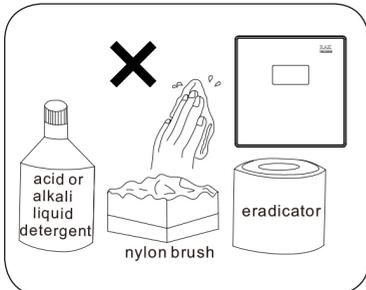
### 3. No sunlight attack.



Do not let sunlight or other strong ultraviolet attack sensor window.

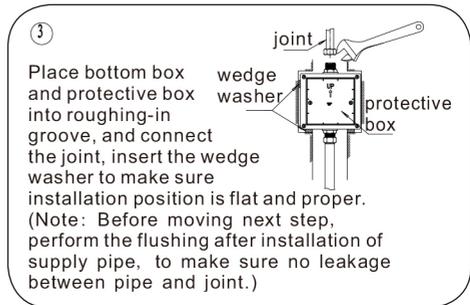
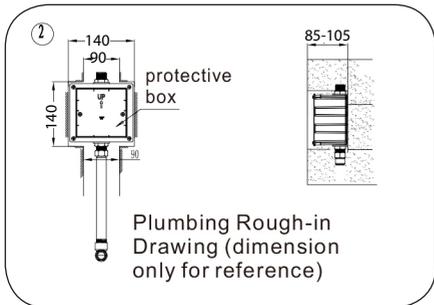
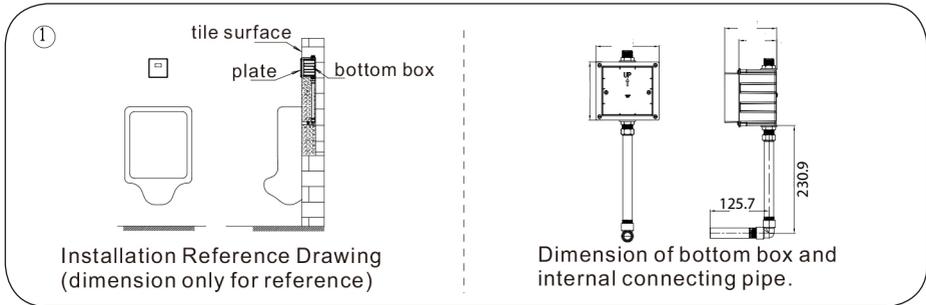
## CLEANING AND MAINTENANCE

1. The sensor plate can be cleaned by soft rag with neutral liquid detergent.
2. Do not use eradicator, abrasive powder or oil, acid or alkali liquid detergent and nylon brush to clean the product, to avoid damage.



## INSTALLATION INSTRUCTION

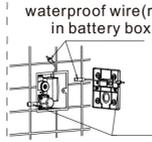
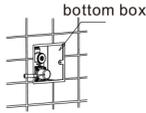
Note Inside the water supply pipe, there might be sand, rust and other impurities that will influence life of solenoid valve. Hence always clean the supply pipe before installation.



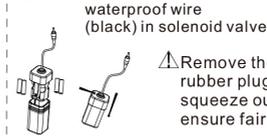
## 6 DC Installation

Place the battery box into bottom box and follow below remarks.

- 1) It must be "AA" size alkaline batteries with 1.5 volt.
- 2) Do not mix different brands, new and used batteries together.
- 3) The non-alkaline batteries come with short life.
- 4) The indicator will be light when the sensor detects a target within five (5) minutes after installation of battery. After 5 minutes, the indicator will flash only once when detecting a target.



Connect the power wire (red) and solenoid valve wire (black) respectively to matching down-lead on sensor. (Note: Colors of wire should be corresponding each other.)



Remove the cap, press side of rubber plug with fingers to squeeze out the air, to ensure fair sealing.

## AC installation – Option, applicable only if supplied

connect adaptor waterproof wire with 3M long waterproof wire (red) with module red wire

connect the lead wire to AC (100V~240V) power

Note: AC adaptor can be installed in designated place that is within 3m from sensor.

## Installation of universal in-put for DC and AC

connect adaptor waterproof wire with power waterproof wire

connect the lead wire to AC (100V~240V) power

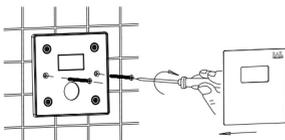
connect 3M long waterproof wire (red) with module red wire

Note: AC & DC adaptor can be installed in designated place that is within 3m from sensor.

connect adaptor waterproof wire with 3M long waterproof wire

1. Connect the power wire (red) and solenoid valve wire (black) respectively to matching down-lead on sensor (Note: Colors of wire should be corresponding each other.)
2. Connect down-lead to AC power. (Attention: This must be done by electrician, to ensure airproof insulation at connection. For safety, please always shut off the power supply during installation of AC power.)
3. For products of universal in-put for DC and AC, the battery requested to be installed into battery box.

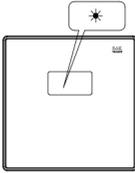
7



After connect power wire and solenoid valve wire, fix the plate with screw and install the cover plate.

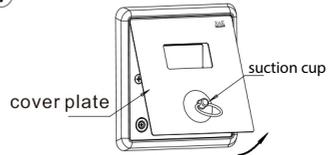
## BATTERY REPLACEMENT

①



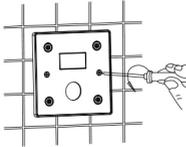
When indicating light keeps flashing, it means the battery is out of electricity. Please replace the battery in accordance with below steps.

②



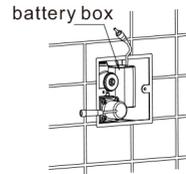
Use suction cup to remove face plate

③



Loose the screws, pull out battery box and solenoid valve wires to remove plate.

④

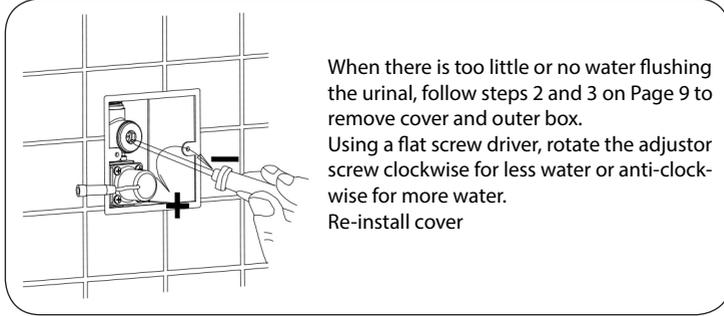


Take out the battery box to change the new one, then install the flushometer accordingly.

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## MAINTENANCE

### 1. Water volume adjustment



When there is too little or no water flushing the urinal, follow steps 2 and 3 on Page 9 to remove cover and outer box.

Using a flat screw driver, rotate the adjustor screw clockwise for less water or anti-clockwise for more water.

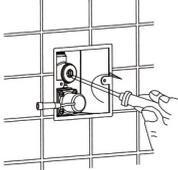
Re-install cover

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## INSTALLATION INSTRUCTIONS

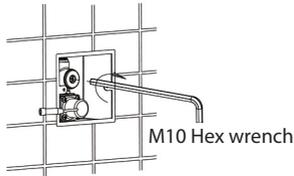
### 2 Filter cleaning

1



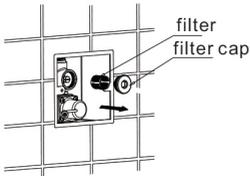
Follow steps 2 & 3 on Page 9 to remove face plate and outer box. Turn adjusting screw clockwise to close the valve.

2



Take out the fixed cap on filter with a M10 hex wrench to turn counterclockwise.

3



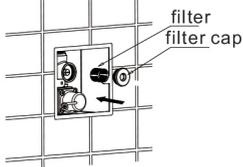
Remove filter with care.

4



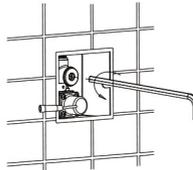
Flush the filter under tap water.

5



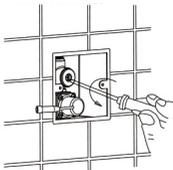
Re-install the filter

6



Turn clockwise with a M10 hex wrench to tighten the filter cap.

7



Turn adjusting screw anti-clockwise to open valve and re-install cover plate

Problem	Cause	Solution	Reference Steps
No flushing	Battery is out of electricity	Replace new battery	Reference page 9
	Sensor window needs cleaning	Remove the dirt	
	Water supply is cut off	Connect water supply and wait for the water	
	Filter is dirty and causes block	Clean the filter	Reference page 11
	Water pressure out of operating range	Adjust the water pressure to operating range	
Water not shut-off	The connecting wires between solenoid valve and sensing model falling off (black wire)	Re-connect the black wire and sense for 10 seconds	Reference page 8
	Water pressure out of operating range	Adjust the water pressure to operating range	
	Water is dirty and impurities stuck at solenoid valve seal	Clean the internal of solenoid valve	
Inadequate flushing water	Water volume is too small	Adjust water volume to desired	Reference page 10
	Filter is getting dirty	Clean the filter	Reference page 11
	Operating pressure is too low	Adjust the water pressure to operating range	
Too much flushing water	Water volume is too big	Adjust water volume to proper	Reference page 10
	Operating pressure too high	Adjust the water pressure to operating range	
Battery life too short.	Using a none-alkali or poor quality battery	Replace standard battery	Reference page 9
Indicator light flashes frequently	Battery is out of electricity	Replace battery	Reference page 9



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