



# RainBackup in a Box<sup>®</sup> SD

## Plug-and-play mains water backup for rainwater harvesting systems. **RWH-BUB02 & RWH-BUB02-R**

This system guarantees water will be available to appliances in times of drought when the Rainwater tank is empty. The system uses a level sensor inside the tank to open a solenoid valve within the control unit when water reaches a critical level.

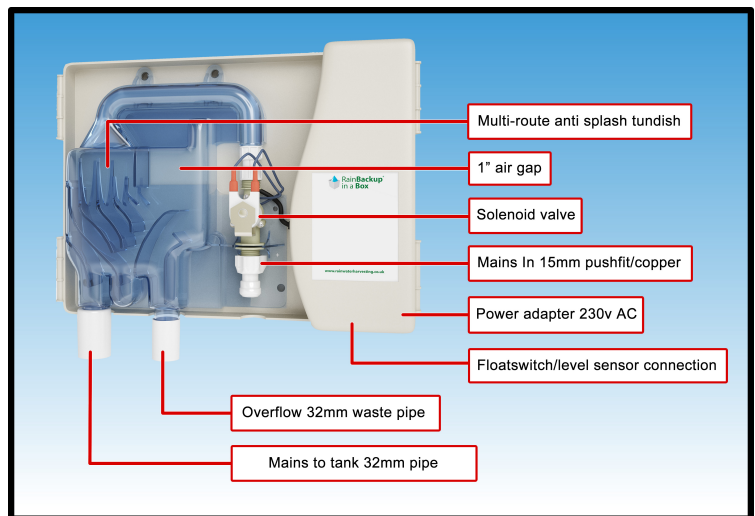
When the tank level triggers the level sensor, the PCB board allows 45 minutes of mains water restricted to 4 litres per minute (180 litres) to enter the tank once the float switch has reached the full position.

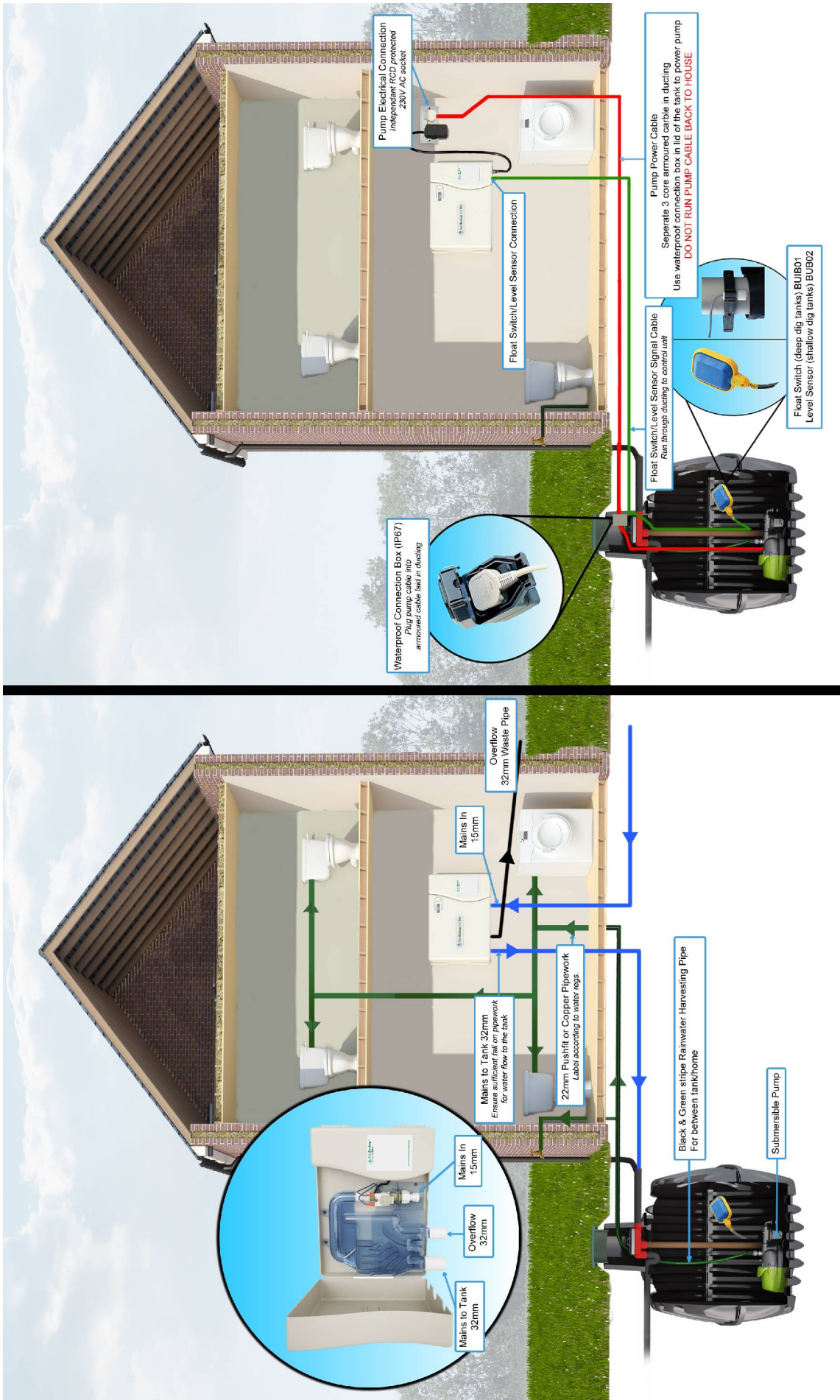
U.K. Building Regulations require that rainwater cannot possibly flow back into the mains water supply.

For this reason all mains backup devices must have an air gap where the mains water flows into the rainwater tank. The air gap in this system is an anti-splash tundish and overflow incorporated into one; the transparent blue moulded part. The level sensor is provided with 20 metres of cable and uses a push connection under the right hand panel.

The **Rain Backup in a Box<sup>®</sup>** should be fitted inside the building where the occupiers can (when rainwater has run out) hear any mains water running from the solenoid valve. Wall mounting is with screws through holes in the back of the control unit.

**The Rain Backup in a Box<sup>®</sup> is reliant on a constant power supply, as such we recommend at least one WC is kept on mains water to prevent any disruption in the event of a power failure.**



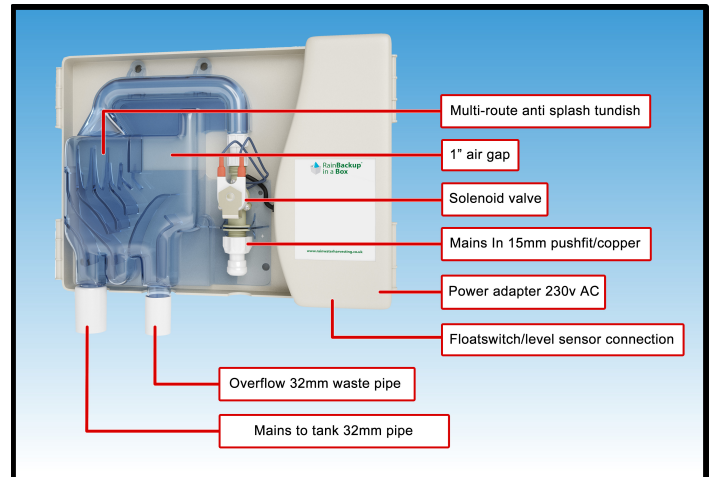


# Installation Instructions

These instructions assume the exterior tank is fully fitted to the specification of the instructions provided.

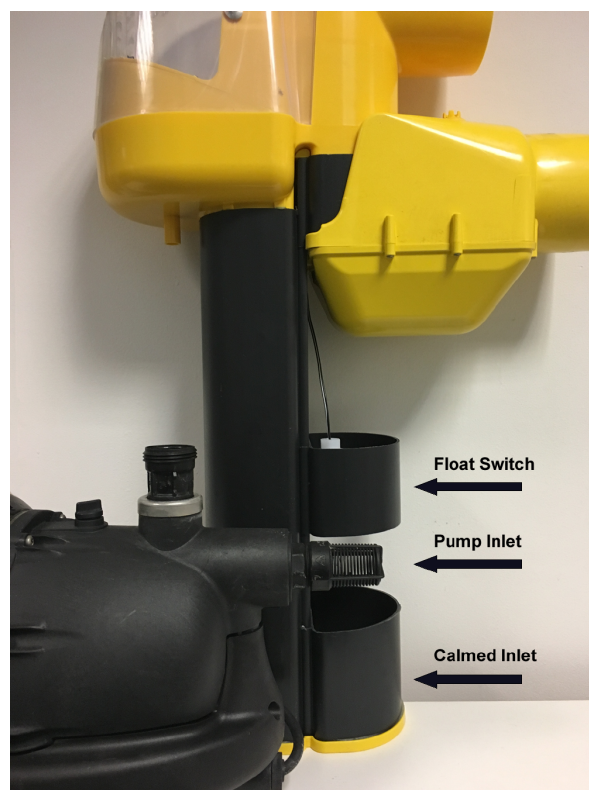
Rainwater should be taken from roof space, through a filter into an underground storage tank and a pump to take the rainwater through a separate pipe network for toilets, washing machine and outdoor use.

- 1) Locate the best position for the **Rain Backup in a Box<sup>®</sup>** unit.
  - a. Inside the building where the occupiers can see and hear it, accessible for occasional checks.
  - b. Within a metre of a 220v AC wall socket into which to connect the plug.
  - c. Accessible to a mains water pipe.
  - d. Above the top of the underground storage tank so that the backup mains water flows by gravity.



- 2) The unit must be securely mounted flush to the wall and not angled in any way thus avoiding the possibility of water escaping from the 1" air gap. Then pipe the mains water to the inlet at the bottom right of the unit.
- 3) Pipe the outlet of the tundish using 32mm waste pipe from the bottom left of the unit to the rainwater storage tank. **The first 300mm must be a straight fall**, with the remaining pipe having sufficient fall for the water to run **under gravity** to the below ground tank. Any angle close to the unit risks the water backing up and flowing back out of the tundish. In most installations this outlet can be channelled to the closest possible rainwater downpipe from the roof. This backup water supply does not have to be piped separately to the storage tank.
- 4) The overflow pipe in the middle of the Rain Backup in a Box should flow to the exterior through a pipe which offers no constriction. It is designed to avoid flooding of the house if the pipe from the tundish to the underground tank is blocked up, and to provide a visual alert to the building occupants. Run the overflow to the exterior of the building to discharge over the ground or gully.

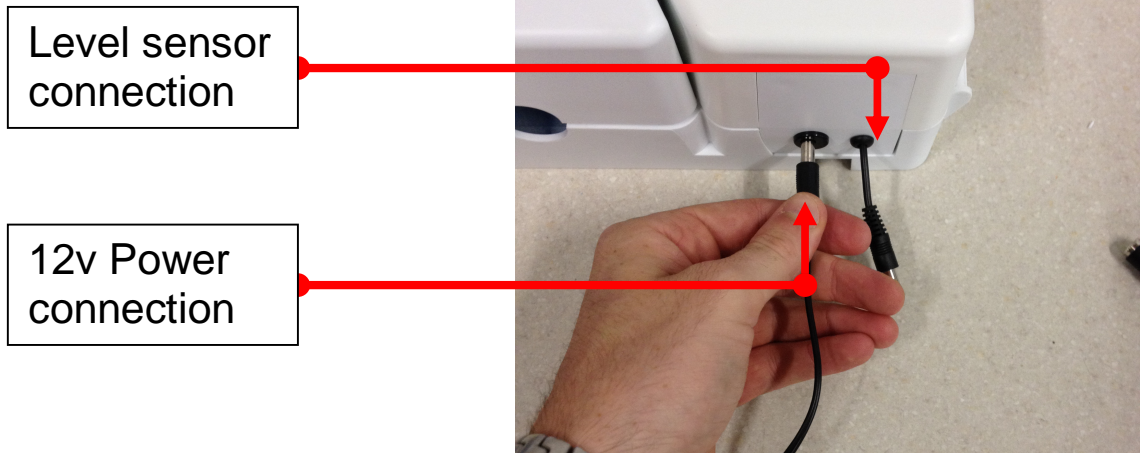
- 5) The float switch comes pre attached to a protective clip ( see below "Types of Sensor Housing" to establish which housing you have ) that easily fits to the filters downpipe, position the protective clip above the filters calmed inlet making sure it is above the pumps inlet to allow for maximum rainwater usage before the float switch is engaged or to your desired level (see image). Channel the level sensor cable from the underground storage tank back to the control unit. Typically this is through a service pipe made of 4 inch (110 mm) plastic which also carries the mains electricity supply to the submerged pump (if so fitted), and the return pipe carrying rainwater from the storage tank back to the appliances in the house.



- 6) **MAKE SURE THE FLOAT SWITCH IS CONNECTED BEFORE THE POWER IS SWITCHED ON**  
Connect the unit's 12 volt DC adapter to a 220V AC mains socket. Power should be maintained to the unit at all times.
- 7) The installation is finished. Mains water will continue to flow into the storage tank until water reaches the level sensor. The system will then provide its first timed cycle.
- 8) Note that the rate of refill of the rainwater tank with mains water by this product is restricted to 4 litres per minute, typically slower than the water flow out of the submersible pump. If you are watering the garden and the rainwater tank runs low it is possible that the pump will shut down due to absence of water, even if the backup mains is flowing. Some pumps need a mains electricity reset (turn switch off and then on).
- 9) Ensure the water flow is tested from the unit to the tank before the service pipe is covered to ensure there are no flow restrictions.

# Wiring Instructions

The Backup in a Box SD uses two simple plug connectors.

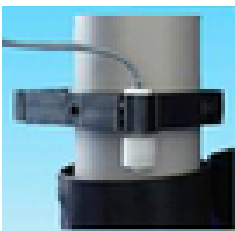


**MAKE SURE THE FLOAT SWITCH IS CONNECTED BEFORE THE POWER IS SWITCHED ON**  
Connect the unit's 12 volt DC adapter to a 220V AC mains socket. Power should be maintained to the unit at all times.

## Types of Sensor Housing



**RWH-BUB02** : The level sensor is housed in the D Clip which is then slotted onto the D profile of the Vantage Filter inside the tank.



**RWH-BUB02-R** : The level sensor is housed in a 110mm clip which you would then position around the 110mm pipe inside the tank. For use with all other filters.

Please follow the instructions provided carefully. Not doing so could cause damage to the unit and invalidate the warranty. If you have questions or require assistance please contact one of our technical team:



**01284 658770** | [sales@automatedenvironmentalsystems.co.uk](mailto:sales@automatedenvironmentalsystems.co.uk)