



# RainBackup<sup>®</sup> in a Box

**Plug-and-play  
mains water backup  
for rainwater  
harvesting systems**

**Rain Backup  
in a Box<sup>®</sup>  
automatically  
provides mains  
water when  
the rainwater  
runs out**

**Simple to use  
Simple to fit**

Rainwater to appliances

Mains water arrival

Mains water to tank

Down pipe water  
flows to storage tank

Rain Water Tank

Float switch connected to  
Rain Backup in a Box<sup>®</sup>

Pump



**DIRECT  
FEED**



# RainBackup<sup>®</sup> in a Box

## MAINS WATER BACKUP

### WHAT HAPPENS IF STORED RAINWATER RUNS OUT?

In a direct feed system, the pump in the storage tank sends rainwater directly to where it is needed in the house or garden. If this rainwater runs out, mains water must automatically be brought into the system to keep the appliances going.

The float switch detects when the rainwater storage tank is empty and opens the electrically-actuated solenoid valve so that mains water flows into the bottom of the tank. When the float switch floats off the bottom of the tank it turns the solenoid valve off. The bulk of the storage tank remains empty ready to take the water from the next rain shower.

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 mains water flows through open air into an inverted conical or inverted cup-shaped device called a tundish. House occupants will know rainwater has run out because mains water will be heard flowing through the Rain Backup in a Box. In the unlikely event of the mains downpipe into the tank blocking, water will be flowing through the overflow pipe outside the house.

**The Rain Backup in a Box<sup>®</sup>** replaces a higgly piggle of components with a single wall mounted unit, one electric plug to a wall socket, mains water input overflow pipe and a pipe to the underground storage tank. The 2012 Evolution model of the Rain Backup in a Box features the transparent blue water ducting, the tundish and the overflow in one moulding and a stylish injection-moulded case.

# FOR DIRECT FEED RAINWATER HARVESTING SYSTEMS

## INSTALLATION INSTRUCTIONS



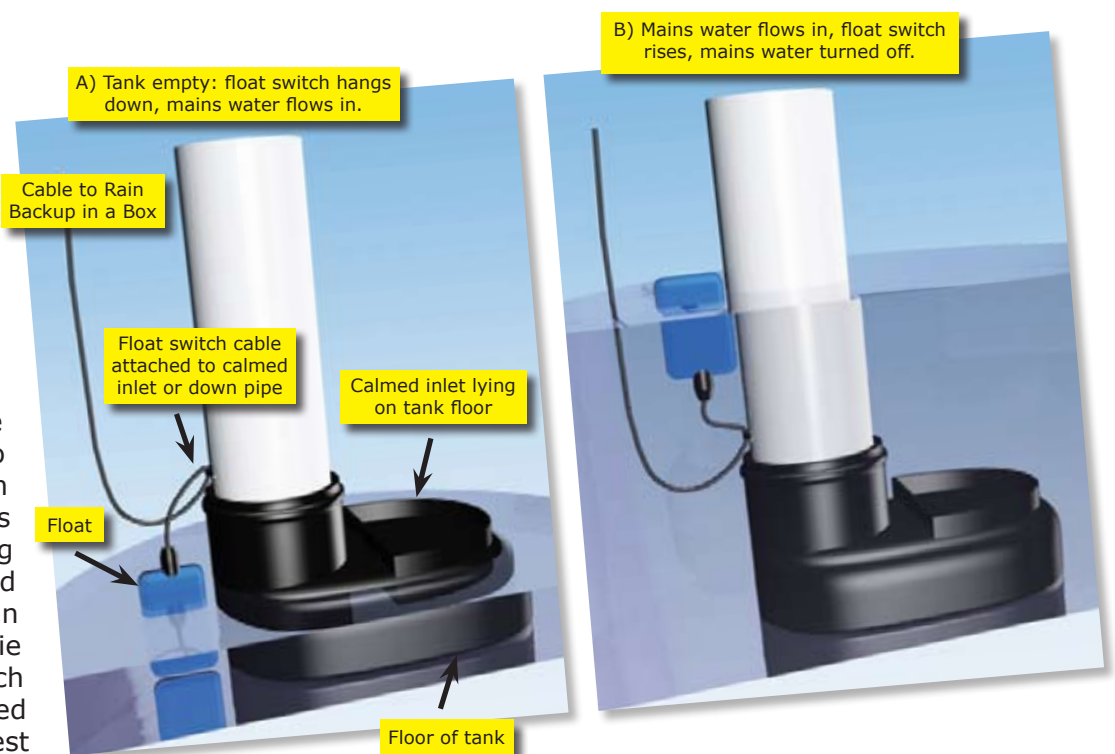
Locate the best position for the Rain Backup in a Box® unit.

- a) Inside the building where the occupiers can see and hear it,
- b) Within a metre of a 220v AC wall socket for the plug,
- c) Accessible to a mains water pipe, and
- d) Above the top of the underground storage tank so that the backup mains water flows by gravity into the tank.

These instructions assume the separate installation of a rainwater system in the building with rainwater flowing off the roofs 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.

- Mount the unit securely to the wall and pipe the mains water supply through an isolation valve at the bottom right of the unit.
- Pipe the outlet of the tundish from the bottom left of the unit to the rainwater storage tank. In most installations this outlet can be channelled to the closest possible rainwater downpipe from the roof. The pipe must drop vertically downwards at least 300mm before the first curve or joint. The backup water supply does not have to be piped separately to the storage tank.
- The overflow pipe at the bottom centre 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 gets blocked.
- Channel the float switch to the underground storage tank. Typically this is through a service pipe made of 4 inch (110 mm) plastic which also carries (i) the mains electricity supply to the submerged pump (if so fitted) and (ii) the return pipe carrying rainwater from the storage tank back to the appliances in the house.

- Attach the wire of the float switch, at a point about 10 centimetres away from the float switch, with a nylon tie wrap to a suitable point near the base of the storage tank.
- Typically, the 4 inch (110mm) downpipe from the filter to the calmed inlet on the floor of the tank is the best securing point, or the calmed inlet itself. Either can be drilled for the tie wrap. The float switch should be positioned so that, at its lowest level, hanging down, the water level is not below the pump inlet.



- Connect the unit's 12 volt DC adapter to a 220V AC mains socket. Power should be maintained to the unit at all times.
- The installation is finished. Some mains water will continue to flow into the storage tank until the float switch rises.

## SIMPLE MAINS BACKUP & EASY TO FIT

**Rain Backup in a Box**<sup>®</sup> is optimised for a direct feed system in which the appliances are kept under pressure. The alternative is a gravity feed system: enquire about the Rain Director<sup>®</sup> which uses less electricity, reduces wear and tear on the pump and appliances, and which ensures water supply during power cuts.

**Rain Backup in a Box**<sup>®</sup> does not fill the tank to the top, but only a few inches deep. The bulk of the storage tank remains empty ready to admit the water from the next rain shower.

In the case of a submersible pressure pump in the rainwater storage tank, it will deliver water to a garden appliance like a sprinkler at a much higher flow rate than the **Rain Backup in a Box**<sup>®</sup>. When the rainwater in the tank is depleted, delivery to the appliance will stop, even if mains water is being admitted. A pump which has a dry run protection will stop and might need resetting at its mains electricity plug or switch; in this case provide an additional float switch for the pump so that it stops delivering water before triggering the dry run protection. Provision of water to internal appliances is less critical because flow rates are of the same order as the backup flow rate.

Simple mains backup and easy to fit. **Rain Backup in a Box**<sup>®</sup> can be used with any rainwater system and is available ex stock in Peterborough. The Rain **Rain Backup in a Box**<sup>®</sup> is built in the UK to the highest standards for RainWaterHarvesting Ltd. The control unit is 370mm wide, 270mm high x 100mm deep. Float switch cable length 10 metres minimum.

Order using the Product ID RHW-BUB-01 One year guarantee on all **Rain Backup in a Box**<sup>®</sup> parts.

## Another eco-innovation from RainWaterHarvesting Ltd.

For gravity feed rainwater systems, use the energy-conscious Rain Director<sup>®</sup> RWH-RD01 with smart header tank and control panel.



The British-built HydroForce pump RWH-HYD03 is optimised for rainwater harvesting: submersible, pressure sensitive, electronically-controlled, with built-in non-return valve and double dry-run protection.



RainWater Harvesting Limited provides products conceived and manufactured to conform not only to the applicable British norms (The Environment Agency's Code for Sustainable Homes, BREAM, WRAS, the UK Building Regulations and the Code of Practice for rainwater harvesting systems BS 8515-2009) but also to international quality standards ISO 9001 Design & Build, EN976, EN858, TÜV and/or CE.

Most of our products are listed on the Water Technology List (WTL), which provides information on water-saving products that qualify for up-front tax relief for commercial companies.

The trade mark **Rain Backup in a Box**<sup>®</sup> is registered and protected.



Online and phone sales at [www.RainWaterHarvesting.co.uk](http://www.RainWaterHarvesting.co.uk)  
For trade and bulk discounts, distribution terms or for more information please call **0800 074 7234**.



RainWaterHarvesting Ltd.  
Unit A, Harrier Park, Southgate Way,  
Orton Southgate, Peterborough PE2 6YQ

Email [info@RainWaterHarvesting.co.uk](mailto:info@RainWaterHarvesting.co.uk)  
Phone **01733 405111** - Fax 01733 230996

