

Kerbside Stormwater Recycling Kit User Manual



Kerbside Stormwater Recycling Kit

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The Kerbside Stormwater Recycling Kit can be purchased online from the Measured Irrigation Shop:
<https://www.measuredirrigation.com/product-page/diy-kerbside-stormwater-recycling-kit>

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1. Introduction to the Kerbside Stormwater Recycling Kit

The Kerbside Stormwater Recycling Kit lets you water your garden with stormwater recovered from the roadside gutters. When rain is expected you should setup the kit at a stormwater outlet at the kerbside. Insert the polycarbonate cup into the 90mm stormwater pipe and connect the leads to a 12 volt power supply. When it starts raining and water is flowing from the stormwater pipe, the cup fills with water. The pump inside the cup starts automatically and pumps water into a tank or wheelie bin. When it stops raining the pump stops automatically.

The kit can be easily removed from the kerbside at any time.

Contents of the kit

- Polycarbonate cup with inlet filter, pump and float switch attached
- Control box connected to the pump and the float switch
- Second float switch
- Stormwater pipe adaptor 90mm x 75mm
- Stormwater pipe adaptor 90mm x 100mm

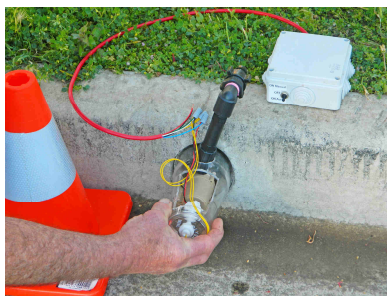


Contents of the kit

Councils attempt to draw water away through stormwater drains, however, in downpours even these can fill up and spill out onto the street flooding roads and residential areas. Your local council might require you to take some responsibility for your own property's stormwater runoff. The Kerbside Stormwater Recycling Kit allows you detain some of the stormwater when it rains.

2. Instructions for using the kit to recycle stormwater

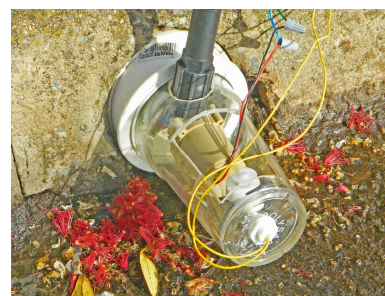
Step 1. When rain is expected insert the polycarbonate cup into the stormwater pipe (the cup makes a secure pressure fit against the inside of a 90mm pipe). The stormwater pipe should be horizontal with a diameter of 75mm, 90mm or 100mm. If the pipe is 75mm you will need the 90mm x 75mm adaptor. If the pipe is 100mm you will need the 90mm x 100mm adaptor. The stormwater pipe can be at the kerbside or on your property.



Inserting cup into 90mm stormwater pipe



Cup connected to 75mm stormwater pipe using 90x75mm adaptor



Cup connected to 100mm stormwater pipe using 90x100mm adaptor

Step 2. Connect the **red** wire from the control box to the positive terminal of a 12V DC power supply. Connect the **black** wire from the control box to the negative terminal of the power supply. You may wish to use a 20W solar panel with a charge controller and a lead acid battery (7 Ah for example).



Connect 12V DC power supply

Step 3. The switch on the control box had 3 positions: **ON Manual** (switch up), **OFF** (middle position), and **ON Auto** (switch down). Flick the switch on the control box down (ON Auto). When it starts raining and water is flowing from the stormwater pipe, the cup fills with water and activates the float switch inside the cup. The pump inside the cup starts automatically and pumps water into a tank or wheelie bin. When it stops raining the water level in the cup falls and the pump stop automatically. To start the pump at any time, flick the switch on the control box up (ON Manual).



Switch with 3 positions: ON Manual, OFF, ON Auto



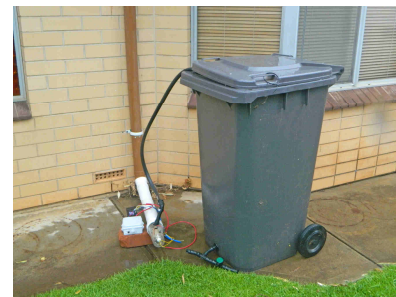
Cup filling with water



Pump start automatically

Head in metres versus pump flow rate in litres per hour

0.0 m	700 L/h
0.5 m	644 L/h
1.0 M	587 L/h
1.5 M	528 L/h
2.0 m	465 L/h
2.5 m	396 L/h
3.0 m	322 L/h
3.5 m	235 L/h
4.0 m	134 L/h

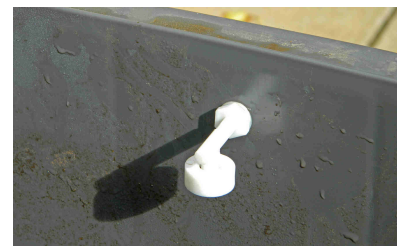


Pumping stormwater into a wheelie bin

3. Instructions for using the second float switch

Step 1. Drill a ½ inch diameter hole in the side of the tank and use the hole to install the float switch (the float shaft should be pointing down).

Step 2. Connect the float switch in parallel with the float switch in the cup. The pump starts automatically when it is raining and the tank is not full. The pump stops automatically when it stops raining or when the tank is full.



Float switch installed in tank with the float shaft pointing down

4. Instructions for using the Kerbside Stormwater Recycling Kit to make a Measured Irrigation Controller

Measured irrigation is an irrigation scheduling method that satisfies the following two conditions:

1. *Variations in the water usage throughout the year are controlled by the prevailing net evaporation rate (evaporation minus rainfall).*
2. *The volume of water discharged by each emitter during an irrigation event is controlled directly without the need to control the flow rate or the duration of the irrigation event.*

Step 1. Disconnect the pump and the float switch wires from the control box. Disconnect the outlet pipe from the pump and remove the pump from the cup



Disconnect the outlet pipe

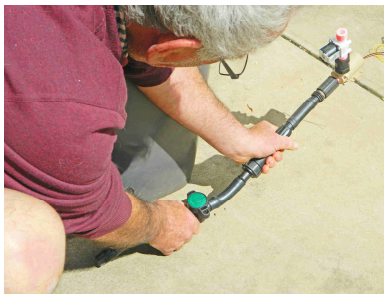


Remove the pump from the cup

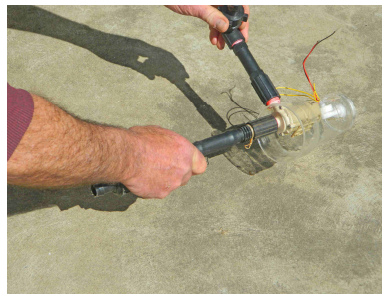
Step 2. Choose a suitable 12V DC solenoid valve and use a 15mm threaded socket to connect the outlet from the pump to the inlet of the solenoid valve. Connect the filter to the outlet from the tank or wheelie bin. Connect the pump outlet pipe to the outlet from the solenoid valve. Connect the outlet pipe to the irrigation zone. It is assumed that the drippers are non pressure compensating (the 14 watt pump cannot provide adequate pressure for pressure compensating drippers).



Connect the pump outlet to solenoid valve inlet



Disconnect the outlet pipe



Disconnect the outlet pipe



Disconnect the outlet pipe

Step 3. Connect the red wire from the pump and one of the wires from the solenoid valve to the **blue** wire from the control box. Connect the black wire from the pump and the other wire from the solenoid valve to the **green** wire from the control box.

Step 4. Connect the **red** wire from the control box to the positive of a 12V DC power supply. Connect the **black** wire from the control box to the negative of the power supply

- Step 5. Choose a suitable evaporator. The evaporator is a plastic container with vertical sides with an opening of at least 20cm x 20cm and a height of at least 15cm (a hobby box is ideal).
- Step 6. Drill a ½ inch diameter hole in the side of the evaporator to install the second float switch. The centre of the hole should be about 2cm lower than the overflow level for the evaporator.
- Step 7. Use the hole to install the second float switch (the float shaft should be pointing down). Connect the wires from the float switch to the **white** and **yellow** wires from the control box.



Choose a suitable evaporator



Drill a hole in the evaporator

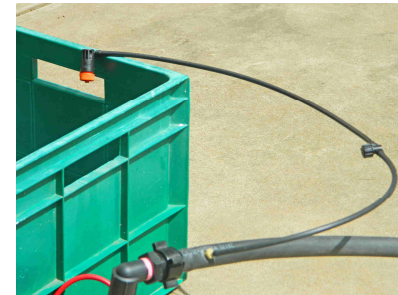


Install the second float switch



The float shaft is pointing down

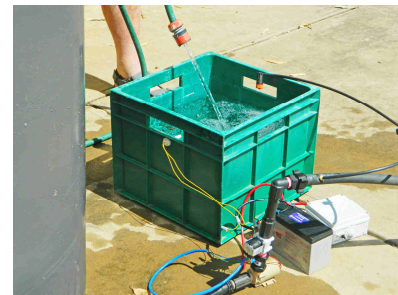
- Step 8. Choose a suitable adjustable control dripper and connect it to the irrigation system so that it drips water into the evaporator during the irrigation



Choose a suitable adjustable control dripper

- Step 9. Fill the evaporator with water to the level of the float switch.

- Step 10 The water level falls as water slowly evaporates from the evaporator. When the water level has fallen below the float switch, the irrigation starts automatically provided that the switch on the control box is in the ON Auto position. The water level rises as the control dripper drips water into the evaporator. When the water level covers the float switch the irrigation stops automatically. The cycle continues indefinitely.



Fill the evaporator to the level of the float switch



The switch is in the ON Auto position



When the water level has fallen below the float switch, the irrigation starts automatically



When the water level covers the float switch the irrigation stops automatically

Note that a suitable solenoid valve, adjustable control dripper, and additional float switches may be purchased online from the Measured Irrigation Shop: <https://www.measuredirrigation.com/shop-1>



Water in the wheelie bin is used to automatically irrigate all of the garden beds using a Measured Irrigation Controller made from the Kerbside Stormwater Recycling Kit.

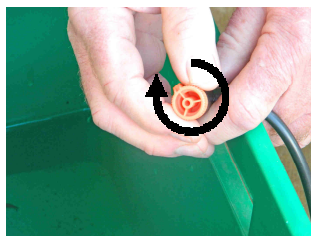
All of my garden beds (as shown below) are irrigated automatically by the Measured Irrigation Controller made from the Kerbside Stormwater Recycling Kit.



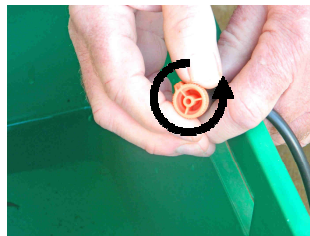
5. How to adjust the water usage

If your plants are not getting enough water, turn the control dripper clockwise to reduce the flow rate of the control dripper.

If your plants are getting too much water, turn the control dripper anticlockwise to increase the flow rate of the control dripper.



Turn the control dripper clockwise to reduce the flow rate



Turn the control dripper anticlockwise to increase the flow rate

6. Key features of the Kerbside Stormwater Recycling Kit

1. The pump has a maximum head of 5 metres.
2. The pump has a flow rate of 700 litres per hour at zero head.
3. The cup is made from heavy duty polycarbonate and so it's unbreakable.
4. The cup has a large overflow area to prevent water backing up inside the stormwater pipe higher than the overflow level.
5. The cup makes a secure pressure fit against the inside of a 90mm stormwater pipe.
6. If the tank is not full, the pump starts automatically when it starts raining. The pump stops automatically when it stops raining or the tank is full.
7. By detaining some of the stormwater when it rains, less pressure is placed upon the stormwater infrastructure provided by councils in residential areas.
8. The water in the tank can be used for automatic drip irrigation by using the Kerbside Stormwater Recycling Kit to make a Measured Irrigation Controller.
9. The Kerbside Stormwater Recycling Kit may be purchased online at the Measured Irrigation Shop: <https://www.measuredirrigation.com/product-page/diy-kerbside-stormwater-recycling-kit>

7. Key features of the Measured Irrigation Controller made from the Kerbside Stormwater Recycling Kit

1. Completely automatic
2. Smart irrigation controller – the irrigation is controlled by the prevailing weather conditions rather than a program
3. Use for non pressure compensating drippers
4. You can adjust the water usage by adjusting the control dripper
5. The water usage is directly proportional to the net evaporation rate (this is a unique feature of measured irrigation)
6. Responds appropriately to an unexpected heat wave
7. When it rains, water enters the evaporator and delays the start of the next irrigation
8. The water usage is independent of the water supply pressure (this is a unique feature of measured irrigation)
9. Uses much less water without affecting the yield
10. You can leave your garden unattended for weeks on end