

## The National Green infrastructure Facility, Newcastle University

The National Green Infrastructure Facility at Newcastle University is a leading research facility for integrated urban water sustainability solutions. It is part of the UK Collaboration for Research on Infrastructure and Cities (UKCRIC) and integrated with the National Urban Observatories programme. The facility provides experimental opportunities in and around the Urban Sciences Building on Newcastle Helix, a flagship sustainable city-centre development site (<https://www.ukcric.com/facilities/national-green-infrastructure-facility/>)

In an age of water resource limitations and increased urban flood risk Delta-T is pleased to be associated with this work and the solutions being devised and trialled here.

Sustainable drainage systems (SuDs) have been constructed that slow and store water, allowing water to infiltrate in well engineered conditions, negating or reducing the chances of urban flooding or slope failure. They also present a natural appearance bringing an attractive and biodiverse element to the urban landscape.



The GP2 logger circled opposite is installed at one end of a street side lysimeter. It can monitor a whole host of environmental parameters (from different types of sensors and from different manufacturers using analogue or SDI-12). One logger is in each of the 10 lysimeters with all data sent to a server and made openly accessible [here](#).



The image on the left shows a GP2 in a road side runoff monitoring installation.

Although the GP2 is IP65 rated, it is here kept hidden and protected in an underground access port. Note the different landscapes being monitored for their effectiveness in runoff control.

Monitoring, calculating and controlling using the GP2 has proved a versatile and useful tool in helping to devise practical solutions to design and risk mitigation issues.



### The GP2 data logger and controller

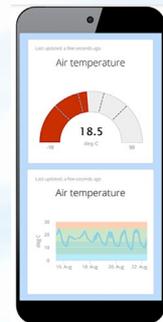
- Compact and versatile
- Easy to programme
- 12 analogue channels
- 4 counter channels
- SDI-12 port allowing up to 55 sensors to be connected
- Up to 6 relays for logic control

See [www.delta-t.co.uk](http://www.delta-t.co.uk) for more information and extensive resource and training pages.

If an environmental parameter can be described with an algorithm then the chances are it can be written into the programme function of the GP2 with the output displayed in either a graphical or tabular form.

### GP2 communication options are available via:

- Cellular
- Ethernet
- Wireless
- DeltaLINK cloud which provides great visual graphics and file sharing options, including dash boards for instant visualisation via a phone or tablet.



Combine it with the with the **SM150T Soil Moisture and Temperature Sensor**, which is a robust, reliable and accurate research grade sensor that comes with a 5yr warranty, and you have a capable long term soil monitoring solution that is ideal for long term burial especially in lysimeter monitoring and buried urban environments. The sensor is also available in a handy portable format.



For further information about SuDs work at the National Green Infrastructure project at Newcastle University please contact Ross Stirling on [Ross.Stirling@newcastle.ac.uk](mailto:Ross.Stirling@newcastle.ac.uk) and for Delta-T Devices please email [sales@delta-t.co.uk](mailto:sales@delta-t.co.uk) or visit [www.delta-t.co.uk](http://www.delta-t.co.uk)