

# Profile Probe type **PR2**

*Advanced technology soil moisture sensor for monitoring and irrigation control*

## **Quick Start Guide** Version 2.0



**AT** *Delta-T Devices Ltd*

## The Profile Probe revealed

### Cables

- To HH2 meter
- To DL6 data logger and extension cable
- To DL2e and other loggers

### Connector

Fully waterproof - but protect with cap when not in use

### Access Tube

Exceptionally robust, thin-walled (1mm) tubes made from GRP - can be re-used many times

### Sensors

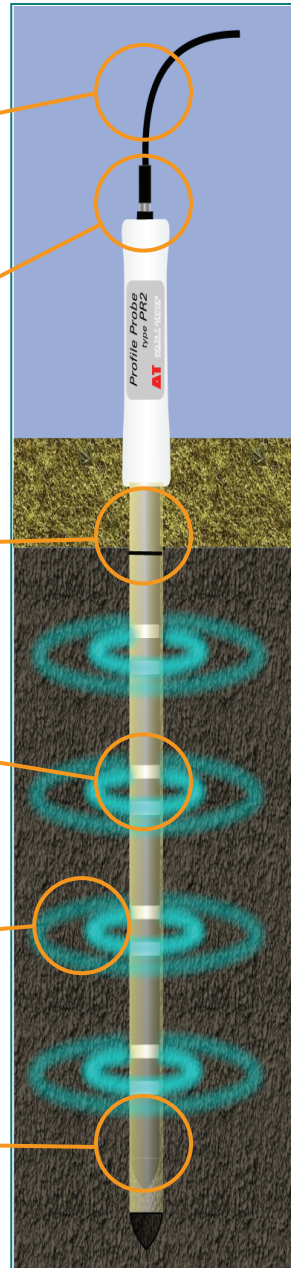
Highly sensitive to soil moisture, but unaffected by temperature or conductivity (salinity)

### Sensing Field

Extends ~60mm into the soil, but field is strongest close to tube - install tubes carefully to avoid air gaps

### Centring Spring

Innovative combination springs ensure probe is perfectly centred for accurate readings - replace when worn

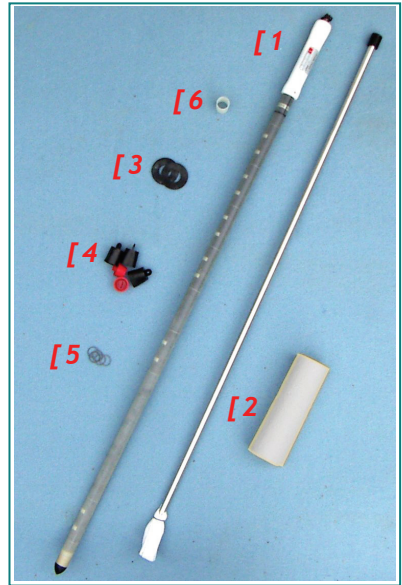


## Installing and inserting the PR2

See the **Augering Guide** for installing the access tubes initially.

Equipment you may need for a site visit:

- PR2 inside protective tube [1]
- Tube cleaning rod and roll of paper towels [2]
- A few spare
  - collars [3]
  - access tube bungs [4]
  - centring springs [5]
- **If tubes are flush-mounted:** access tube spacer [6]
- **For portable reading:** HH2 meter and cable
- **If setting up logging:** data logger (DL6 or DL2e) and cable



- 1 Remove the access tube bung.
- 2 If the access tube has been left empty for several weeks, check for condensation by threading paper towel into the slot in the cleaning rod and pushing this to the bottom of the tube. Dry the tube thoroughly if necessary.
- 3 Remove the PR2 from its protective tube. If the access tube has been inserted flush with the soil surface, slide the tube spacer [6] over the probe end and push all the way up past the top o-ring.
- 4 Insert the probe, taking particular care with the first centring spring (a slight twisting action helps). As you push the probe down, rotate to align the mark on the tube with the probe label and finally push over the top o-ring.
- 5 The PR2 is then fully sealed in its access tube and ready for either immediate reading or attaching to a logger for extended monitoring.

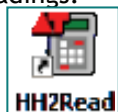
## Portable monitoring

- 1 Connect the PR2 to the **HH2 meter**.
- 2 Press **Esc** to turn the meter on, and if necessary press again until it displays:
- 3 Make sure the meter is set to read from a PR2:
  - Press **Set** and scroll down to the **Device** option.
  - Press **Set** again and scroll down to:  
**Device:**  
◆ PR2
  - Press **Set** to confirm this choice.



- 4 Option - if you intend to store readings, it may be helpful to define each reading by setting a plot label and sample number - accessed by pressing **Set** and scrolling to the **Data** option.
- 5 Press **Read** to take a reading (it takes about 3 seconds) and press the arrow keys to view readings from other depths. You can choose different units from the **Display** option.  
**PR2                      Store?**  
**22.7%vol              ◆ 100mm**
- 6 Press **Store** to save or **Esc** to discard the reading.

- 7 Remove the probe, replace the access tube bung and move on to a new site....
- 8 If you have saved data, connect the HH2 to your PC and run HH2Read to retrieve the readings.





### Soil type


The Profile Probe calculates soil moisture more accurately if it knows what type of soil it is measuring in. For most purposes this simply means setting all sensors to either **Mineral** or **Organic** from the **Soil Type** menu - use mineral for sand, silt or clay soils and organic for peaty soils. For greater accuracy you can set calculation parameters specific to your soil - see the Soil-specific Calibration appendix in the PR2 user manual.


## Extended monitoring at one site


These instructions refer to the **DL6 Datalogger**. Setting up the PR2 with a **DL2e logger** is more complex and you should refer to its user manual.

You will need access either to a portable PC with **DL6 Control Panel** software installed, or to a Pocket PC with **Pocket DeltaLINK**.

- 1 Connect the Profile Probe directly to the DL6 with the supplied cable. Extension cables can be added as required up to 100m.
- 2 Configure the DL6 using Pocket DeltaLINK or DL6 Control Panel:
  - Click on **Connect to Logger** and  for the **Programs** window, then in the **Sensors** tab set Channel 1 either to PR2/4 or PR2/6.
  - Set the **Recording Interval** in the **Main** tab...
  - ... there are many other options - refer to the DL6 user manual for details.
  - When finished, click on  to install the program in the logger.

- 3 To check the connections, select the **Sensors** tab and click on  to see the PR2 readings.

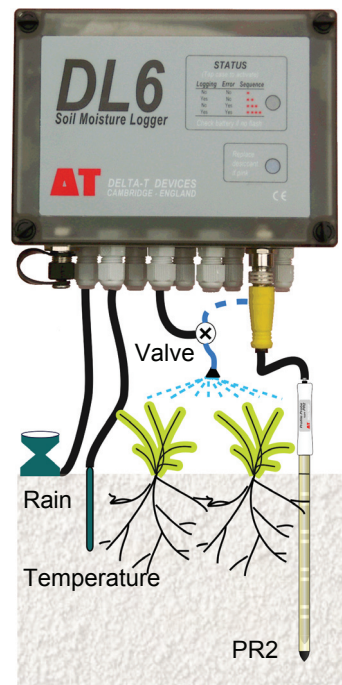
- 4 When ready click on  to select the **Logger** window and **Start** to start logging...

- 5 ...later to collect the data, connect to the DL6 and click on  to select the **Dataset** window from which you can retrieve and display all stored readings.

## Irrigation control

The PR2 and DL6 form a powerful combination for controlling irrigation based on the soil moisture profile.

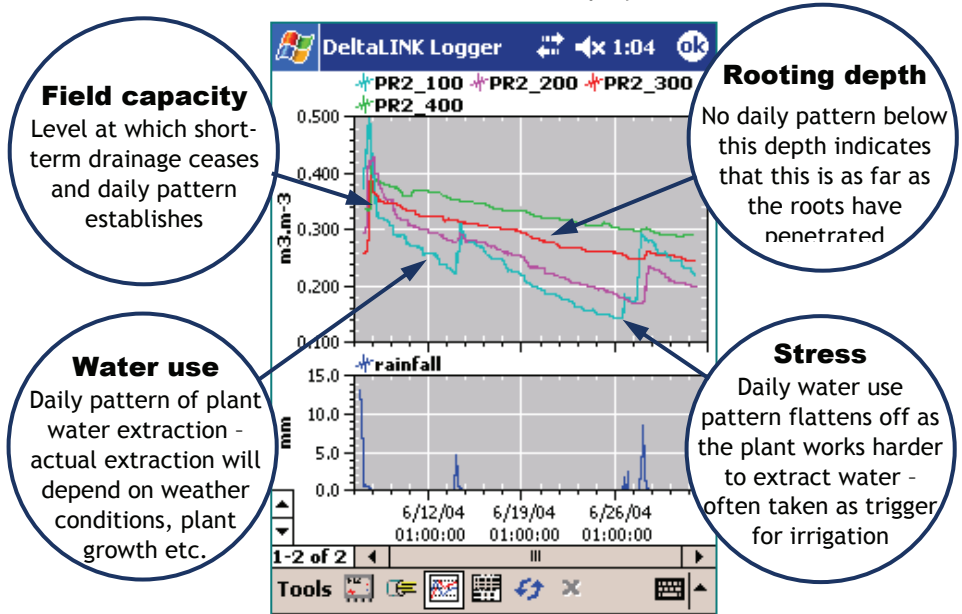
See also the **Irrigation Control Quick Start Guide** on the Software and Manuals CD.





## Interpreting readings

This illustration is from a Pocket DeltaLINK display on a Pocket PC:



## Care and Safety

- Store the PR2 dry in its protection tube with the connector cap fitted.
- Pay attention particularly to the lowest centring spring when inserting the PR2 into an access tube – a gentle twisting action helps.
- Earth yourself on the metal connector before touching the detector rings to avoid any possibility of damage by electrostatic discharge.
- Don't immerse the PR2 in water – if this happens warm gently <50°C for 24 hrs
- To minimise any electrical interference with other equipment, lay as much of the cable as possible along the surface of the soil when taking a reading.
- Clean the probe with damp plain paper towels
- Never use any chemical solvents or cleaners
- Chemical damage may invalidate the warranty



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