



GP1 Data Logger / Irrigation Monitor

Data logger with **smart** irrigation control options

Logging and control

- 2 ThetaProbe moisture sensors
- 2 temperature (10k thermistor)
- 1 rainfall
- 1 flow meter
- Smart control relay
- Battery or external power



Versatile data logger

- 2 differential analog channels 0 to 2.5V
- 2 temperature and 2 event counter
- 600,000+ readings (>1 year)

Simple set-up

- Full configuration using Pocket DeltaLINK

Accuracy

In combination with 1 or 2 ThetaProbe soil moisture sensors, the GP1 Irrigation Monitor provides simple **high accuracy** recording of moisture content (as well as rainfall and temperature) - and at much lower cost than has so far been possible.

This compact package has two high-resolution differential analog channels that enable the ThetaProbe's outstanding accuracy to be achieved over its full operating range.

Simple and convenient

The GP1 is a complete solution housed in an IP67 enclosure with battery power.

For convenience you may use a PDA with Pocket DeltaLINK (see picture) at anytime to download or collect and view the data - or even to reconfigure the logging set-up in the field.

Irrigation control

The GP1 has unusually comprehensive control relay options. It can control irrigation

directly from the soil moisture (and/or rainfall and/or temperature) or act as a sophisticated interface between these sensors and many types of programmable timer.

Start and Stop control levels can be separately configured (see example overleaf) and there's even an option for pulsing the output when it's desirable to match the water application rate to the soil's infiltration ability.

Versatility

The GP1 provides 2 differential 0 to 2.5V channels which can be used to record readings from industry standard environmental sensors. It can be used with standard alkaline/lithium batteries or external DC or AC power sources. The accelerated logging option allows for slow recording rates to combine with rapid recording of wetting fronts during rainfall events.

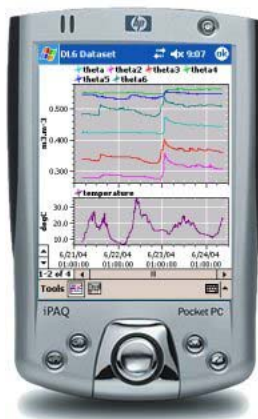
Applications

Research

Soil Science, Plant Physiology, Agronomy, Climate Research and Meteorology

Irrigation

Horticulture, Agriculture, Amenity Landscaping, Turf and Gardens



Smart Irrigation Control

Example:

When

Not raining (rainfall < 0.5mm/hr)

AND

(surface moisture < 10%
OR
root-depth moisture < 15%)

START Irrigation

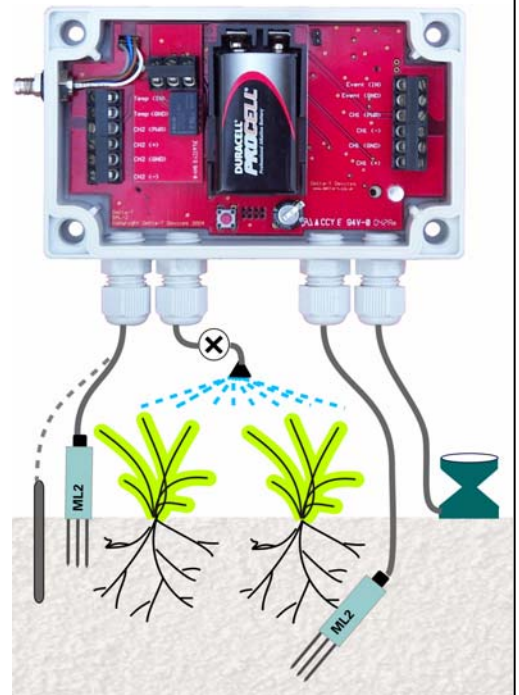
When

Raining (rainfall > 1mm/hr)

OR

Soil thoroughly wet (root-depth moisture >30%)

STOP Irrigation



GP1 Specifications provisional

	Specification*	Range / Note
Inputs and outputs		
2 x Analog inputs	±0.6mV	-0.1 to +2.6V
	±0.1% water content	0 to 100%
2 x Resistance	±0.1°C	10k thermistor -10 to +40°C
1 x Event counter		Up to 5 events/second
1 x High speed event counter		Up to 10kHz events/sec
1 x Relay output	3A relay	
Power	9V internal alkaline	¹ 1 year typical
	9V internal lithium	² 3 years typically
	12V DC or 24V AC external power	Via IP68 connector
Sensor excitation	5 to 9V up to 120mA	Uses battery or external power
Control/Alarm channel		
Control options	Separate Start and Stop conditions	Multiple on/off conditions utilising up to 3 sensor
Duty cycle	5 to 100%	Variable duty cycle available during on option
Data recording		
Logging frequency	1 s to 24 hr	
Accelerated logging	1 s to 12 hr	Logging option, rainfall triggered
Data collection	To PC or iPAQ	DeltaLINK s/w
Logging status	Flashing LED	
Physical		
Environmental	IP67	Cable glands, connector & case
Size and weight	140 x 100mm, 210g	
Temperature	0 to +40°C	Full accuracy
	-20 to +60°C	Operating

* Note these are specifications for the GP1 and do not include sensor errors

Connection & Application Options

Sensors	Connect to GP1?	Notes
ThetaProbe ML2	✓	Ideal for 1 or 2 ThetaProbes
WET sensor	✓	Water content, Salinity, Soil Temp.
Temperature ST1 or ST2	✓	10k thermistor
Flow meter	✓	Up to 10kHz max
Sunshine Sensor BF3	✓	Record total, direct and sunshine hours
Voltage sensors	✓	0 to 2.5V
Wind monitoring sensors	✓	Wind Speed & Direction
Basic Weather Station	✓	Wind sensors Rain gauge %RH & air temp Solar radiation
Logging Rain gauge RG1 or RG2	✓	Up to 5 events/sec

When logging two ThetaProbes once per hour:

¹ Alkaline batteries last typically >1 year

² Lithium batteries for harsh environments or extended battery life of typically >3 years

Please note that the information provided in this leaflet is provisional and subject to change without notice



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GP1 data sheet Mar 2005