**DATA SHEET**

## Tinytag Plus
## Leaf Wetness Logger
## (0-100 units)

## TGP-0903

**Issue 1**
23rd September 2011
E&OE

The workhorse of the Gemini range the Tinytag Plus data loggers are housed in robust, waterproof (IP68) rated cases that are designed for use in harsh and outdoor applications

The TGP-0903 is a self contained leaf wetness recorder.

### Popular Applications

- Farms
- Orchards
- Vineyards
- Leaf drying
- Corrosion research

### Features

- Leaf wetness recorder
- 15,900 reading capacity
- Lightweight and portable
- 8 bit resolution
- Unique serial number
- Waterproof case
- Non volatile memory
- User-replaceable battery

## Features

| | |
|---|---|
| **Total Reading Capacity** | 15,900 readings |
| **Memory type** | Non Volatile |
| **Trigger Start** | Magnetic Switch |
| **Delayed Start** | Relative / Absolute (up to 45 days) |
| **Stop Options** | When full |
| | After n Readings |
| | Never (overwrite oldest data) |
| **Reading Types** | Actual |
| **Logging Interval** | 1 sec to 10 days |
| **Offload** | While stopped or when logging in minutes mode |

## Reading Specification

**Wetness**

| | |
|---|---|
| **Reading Range** | 0-100% |
| **Sensor Type** | Electrical impedence grid Artificial leaf) Supplied uncoated |
| **Reading Resolution** | 0.5% |
| **Sensor Accuracy** | ±2 units |

## Physical Specification

| | |
|---|---|
| **IP Rating** | IP68 waterproof (see notes) |
| **Operational Range*** | -40°C to +85°C (-40°F to +185°F) |
| **Case Dimensions** | |
| **Height** | 78mm / 3.07" |
| **Width** | 50mm / 1.97" |
| **Depth** | 34mm / 1.34" |
| **Weight** | 110g / 3.88oz |

*The Operational Range indicates the physical limits to which the unit can be exposed, not the reading range over which it will record.

| **Sensor Dimensions** | |
|---|---|
| **Width** | 76mm / 2.99" |
| **Depth** | 70mm / 2.76" |
| **Height** | 13mm / 0.51" |
| **Cable length** | 2m / 6.56' |

## Calibration

For best results, the leaf wetness sensor should be field calibrated, since the transition point will vary for different areas and vegetation. Set the logger for a short logging interval (1 minute) & place the sensor in situ. Observe the vegetation until it reaches the desired wetness by natural means and note the time. The logger can then be offloaded and the transition point found.
Once the transition point has been found, set an alarm for readings over this level. The Tinytag Explorer software will then calculate the total time spent in the wet state.

## Required and Related Products

One of the following pieces of software:

SWCD-0040: Tinytag Explorer software or
SW-0500: Easyview Pro software
and a CAB-0007-USB: Tinytag Ultra/Plus/View USB Download Cable

**Further related products:**

CAB-0007: Tinytag Ultra/Plus/View Serial Download Cable
SER-9500: Tinytag Data Logger Service Kit
ACS-6000: Trigger Start Magnet

## Notes

| | |
|---|---|
| **Battery Type** | SAFT LS14250 or LST14250; Tekcell SBAA02P |

The logger will operate with other ½AA 3.6V Lithium (Li-SOCl2) batteries but performance cannot be guaranteed.

| | |
|---|---|
| **Replacement Interval** | Annually |

Before replacing the battery the data logger must be stopped.

When replacing the battery, wait at least one minute after removing the old battery before fitting the new one.

Data stored on the logger will be retained after a battery is replaced.

If used at low temperatures the data logger should be allowed to warm to room temperature before it is opened to avoid condensation forming inside the unit.

The IP68 rating is valid only when the unit's connector cap is fitted and the unit is orientated with it's hanging tab uppermost.

Measurement units are arbitrary. The actual meaning is dependent on many factors, including impurities in the water, and any coating which may need to be added to suit a particular application. Further information is available on request

**Trigger Start**

The trigger start option allows a unit to be set up as required and then started at a later time with a magnet. The position of the trigger start switch is indicated by the • • • marking on the back of the logger. When the "Wait until trigger event" option is selected in the Tinytag Explorer software the green LED on the unit will flash once every eight seconds to indicate that it is waiting to start. When a magnet is held next to the • • • marking, the green LED will light to indicate the switch is closed. After the magnet has been removed, the green LED will flash every four seconds to indicate that the logger is recording.

**Wet/Dry Transition Point**

Before the fraction of time wet or dry can be calculated, the wet/dry transition point must be found.
A sharp change in resistance occurs in the wet/dry transition on the uncoated sensor, while a coated sensor has a poorly defined transition. The resistance of the un-coated sensor at the wet/dry transition is normally between 50kOhm and 200kOhm. The coated sensor transition normally occurs from 20kOhm to above 1MOhm

## Approvals

This equipment complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause any harmful interference, and (2) the device must accept any interference received, including interference that may cause undesired operation.

Gemini Data Loggers (UK) Ltd. operates Quality and Environmental Management Systems which conform to ISO 9001 and ISO 14001. The scope of these systems covers the design, manufacture and servicing of data logging and associated equipment, including software.

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