

Gemini Data Loggers

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Tinytag Plus Data Logger Manual

The name 'TINYTAG' covers a range of miniature dataloggers used to aid the collection and monitoring of data. TINYTAG PLUS data loggers offer many advanced features including:

- 15900 (approx.) Reading capacity
- Logging intervals of 1 second to 10 days
- Programmable delayed and trigger start
- Off-load whilst logging
- Min/Max/Actual readings
- Two programmable alarms
- 3 Stop options
- Manufactured to BS EN ISO9002
- Complies with EN 50082 Pt1&2: 1992/95

TGP-0104 TGP-0204 TGP-0304 TGP-1500 TGP-1510

9800-4340 Provisional E&OE.

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FEATURES

Reading Capacity

TINYTAG PLUS stores the 15900 data readings, along with related information such as the logging interval and description/title, together with details of the individual logger including the unique serial number.

Delayed and Trigger Start

The logger may be programmed to delay the start of the logging cycle by up to 45 days. The delay can be set as relative or actual time and will have full date/time retention. Alternatively it may be set to wait until a magnet is applied to the case before logging starts.

Logging Intervals

The logging interval can be specified in either seconds or minutes. The seconds mode can be set up to 4.5 hours, the minutes mode up to 10 days. Certain features are only available in minutes mode.

Off-load While Logging

When the logging interval is specified in minutes it is possible to retrieve data from a TINYTAG PLUS without interrupting logging.

Stop Options

TINYTAG PLUS may be set to stop logging in one of three ways:

- i. Never (wraparound). In this mode the logger continues to record, over-writing the oldest data first once full.
- ii. When full.
- iii. After a specified number of readings.

Minimum, Maximum or Actual Readings

When the logging interval is specified in minutes, it is possible to record minimum, maximum or actual readings. For minimum and maximum readings, the recorded value is calculated from readings taken during the interval between readings. Therefore a logging interval of at least 2 minutes is needed for these functions.

Alarms

TINYTAG PLUS has two programmable alarms. Both use a red LED indicator to show an alarm state. Both are fully programmable for:

- i. Alarm trip point
- ii. Over or under value.
- iii. Latching or non-latching.
- iv. One or two flashes.

The alarms can be cleared via the Windows software without interrupting the logging.

Red Alarm LED

One or two flashes, defined by the user when setting the alarms. If both alarms are triggered the red LED flashes 4 times.

When the unit stops logging, the red LED gives one bright, half-second flash. This LED is not normally used at any other time, however if both LEDs flash brightly and rapidly together, the unit will not work. Remove and refit the battery. If the problem persists, return the unit for repair.

Green Status LED

Waiting delay start: 2 flashes every 4 sec

Logging (seconds): 1 flash every 3 sec

Logging (minutes): 1 flash every 4 sec

Storing a reading: 1 bright flash

Power Up: On for several seconds

Note: Status indication may vary with short logging intervals.

MANAGING SOFTWARE

Logging is started and the data retrieved by means of the management software (OTLM) which is run on a Windows™ based host computer. Two-channel versions require OTLM version 1.5 or greater. In order for TINYTAG units to communicate with the host computer, the correct interface cable is required for connection between a spare serial port on the computer and your TINYTAG data logger (part number CAB-0007). Should any difficulty be experienced in communicating with the unit, firstly check that the cable is properly connected

to the correct serial port. Please read the OTLM manual before using your TINYTAG data logger.

Exporting Data

Data may be exported from the host software in text formats ready for importing into spreadsheet or other programs. Exported data may include the title, description and other headings.

CARE OF UNIT

General

Care must be taken to ensure that no dirt or moisture gets into any connector. Where the unit has been used in cold conditions, allow it to warm to room temperature prior to opening to avoid condensation forming inside.

Battery

Always stop the unit logging before changing the battery. Check that the replacement is aligned with markings on battery holder. The green LED

will light for a few seconds. If it does not, remove the battery and try again.

When replacing the battery, it is recommended that the O-ring lid seal and silica gel pack are also replaced (see below).

To maximise battery life, use longer logging intervals (in minute mode) if possible, and do not leave the logger connected to the host computer for long periods. Disable alarms when not in use. Low temperatures also reduce battery life.

WARNING: The lithium battery should be disposed of to local regulations. It should NOT be charged, short-circuited, heated above 85°C, incinerated or disassembled.

SPECIFICATION

Physical Dimensions

Size (RH): 80mm x 57mm x 34mm

Size (other): 80mm x 59mm x 34mm

Weight: approx. 140g + Probe

Battery

Size: 3.6v ½ AA size Lithium

Type: Saft LS 14250, Tadiran TL-2150/S, Sonnenschein SL-750 or equivalent.

Life: Up to 2 years for PT100, 4 years for PT1000 and 2-channel, and 5 years for RH.

Battery replacement is recommended once a year for PT100 loggers and every 2 years for the other types. A Service kit including battery, O-ring and silica gel pack is available from your TINYTAG distributor.

IP68 Rating

The IP68 waterproof rating is valid to 50ft (15m), provided the connector cap (and probe if applicable) are securely fitted to the connectors. In RH models, the sensor is necessarily only protected to IP20.

EMC environment

The operating environment for TINYTAG PLUS is as defined in EN50081 pt1: 1992 and EN50082 pt1&2: 1992/95. TINYTAG PLUS complies with EMC generic immunity standard EN50082 pt1&2: 1992/95 with any standard leads or sensors supplied. User-supplied leads and sensors may affect this compliance. Some degradation in accuracy of the logged variable may occur if the unit is subject to RF electromagnetic disturbance (as per generic immunity standard EN50082 pt 1&2: 1992/95).

TINYTAG PLUS PT100 and PT1000 Loggers

Operating Temperature

TINYTAG PLUS PT dataloggers are designed to operate over a temperature range of -40°C to $+85^{\circ}\text{C}$. The unit may not work properly if operated outside this range. See also battery warning.

Sensor Range

The standard range for TINYTAG PT100 loggers is -50°C to $+300^{\circ}\text{C}$, and for PT1000 loggers it is

-200°C to +100°C. They are always supplied with a probe. This temperature is the maximum to which the tip of the probe may be exposed. Temperatures below -40°C or above +200°C at the back of the probe may cause damage to the sleeving and reduce accuracy.

Thermal Time Constants

The time constant in water is approximately 10 seconds to 90%. In air it is 120 seconds.

Sensor Accuracy

PT100: $\pm 1^{\circ}\text{C}$ from 0°C to $+150^{\circ}\text{C}$

PT1000: $\pm 0.8^{\circ}\text{C}$ from -100°C to $+100^{\circ}\text{C}$

Logger Resolution

PT100: 1°C at 0°C

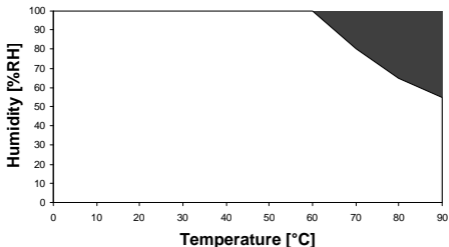
PT1000: 0.43°C at -200°C

TINYTAG RH LOGGERS

Operating Range

0% to 95% RH (Non-condensing)
between -20°C and +85°C, but see
sensor working range below.

RH Sensor working range



Accuracy

± 3% RH at 25°C.

Temperature Dependency is low.

Resolution is better than 0.5% RH.

Response Time

Less than 10 seconds to 90% in a non-condensing atmosphere. If wetted the sensor may take up to 30 minutes to recover.

The RH sensor

The sensor is necessarily exposed and therefore care must be taken not to cause damage. It may be gently cleaned in de-ionised water or pure isopropanol but NOT abrasive cleaners. Any scratch or residue on the delicate surface of the sensor will affect the accuracy of readings.

Chemical Resistance

The sensor will resist chemical attack by small amounts of the following vapours or gases:

Carbon monoxide, Ammonia, Sulphur dioxide, Chlorine, Formaldehyde, Ethylene oxide, Freon, Hydrogen chloride, Hydrogen fluoride, Nitrogen dioxide, Ethanol, Methanol, Ozone, Isopropanol, Methyl chloride and Hydrogen peroxide. It also offers resistance to ultraviolet rays.

Permanent sensor degradation may be caused by contact with substances such as salt solution,

which can crystallise within the porous layers of the sensor affecting local moisture levels there, and hence readings.

Note: for high humidity or applications with significant temperature changes, the IP68 version (Tinytag Plus) should be used.

TWO CHANNEL LOGGERS

TINYTAG PLUS two channel loggers enable two variables to be recorded simultaneously. The characteristics of each channel are identical to their single channel counterparts, however the following points should be considered before use.

(More details will be given soon)

The number of readings.

Assignment of alarms.

Starting, stopping, timing of readings.

Offloading. Software compatibility.

Standard two-channel loggers available are Range H (Internal Sensor) with Relative Humidity and Range H (Internal Sensor) with Range G (External Sensor). See above for RH specification. Range G and H specification follows.

TINYTAG PLUS Temp sensor range:

TINYTAG PLUS two-channel Temperature loggers use 10K NTC Thermistors. Ranges available (depending on the model) are:

Range G -40°C to +125°C (External Sensor)

Range H -30°C to +50°C (Internal Sensor)

Thermal Time Constants

With internal sensor, the time constant in water is approximately 1.5 minutes to 90%. In air it is longer. Applications requiring a shorter time constant will require the external sensor probe version. (See probe data sheets for details).

Accuracy and Resolution

Sensor Accuracy

Range H internal sensor loggers:

From 0°C to 70°C: $\pm 0.2^{\circ}\text{C}$.

Range G External Probe Sensor:

See probe data sheet.

Logger Resolution

Range H 0.25°C at 0°C

Range G 0.4°C at +25°C

APPROVALS

All Tinytags are manufactured within the Orion Group to:

ISO EN 9002 part 2. (Cert. No 6134)



Tinytags conform to:

EN 50081 pt1:1992

EN 50082 pt1&2:1992/95



WARRANTY

TINYTAG units carry a manufacturing defects warranty of 12 months from the date of purchase. Units returned under warranty will be repaired or replaced at the manufacturer's discretion. This warranty does not cover mishandling, modification or battery replacement and is subject to the standard Terms and Conditions of Sale, a copy of which is available upon request.

Note: Claims under warranty should be referred to the point of sale.

'Tinytalk', 'Tinytag' and 'Tinyview' are registered trade marks.

MARKETED BY

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