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Gemini
DATA LOGGERS

Tinytag

## ⚠ Warnings

- If this equipment is installed or used in a manner not specified by the manufacturer then the protection provided by the equipment may be impaired.
- This equipment contains a lithium battery. Danger of explosion if the battery is incorrectly fitted. Do not cut open, incinerate, recharge or expose to temperatures in excess of 100 ℃ (212 ℉).
- The battery should be replaced by a trained technician using the battery supplied in the appropriate manufacturer's service pack.
- This equipment should only be interfaced to equipment which is powered by a Safety Extra Low Voltage Supply. The maximum voltage levels are to be 30V rms, 42V peak or 60Vdc and separated from hazardous voltages by double or reinforced insulation. For the United States consider a Safety Extra Low Voltage Supply to be a Class 2 source as defined in the National Electrical Code.

## Features

### Logging Description
A text label that can be altered by the user to describe the logging run taking place.

### Delayed Start
The logger may be programmed to start recording after a set delay or on a specific time/date (the maximum delay that can be set for a recording run is 45 days).

### Trigger Event/Start
The logger may be programmed to start recording when a magnet is swiped across the left side of the unit.

### Seconds/Minutes Mode
When set to record in minutes mode a data logger can be offloaded whilst recording or a current reading can be taken. In seconds mode a data logger can be set to record in multiples of one second but the unit has to be stopped before it can be offloaded or a current reading can be taken.

### Reading Types
A Tinytag Plus IS data logger can be programmed to record one of three different values - the actual value at the end of each logging interval or the minimum, or maximum, value over the duration of a logging interval.

| | |
|---|---|
| **Logging Interval** | 1 second to 10 days |

**Total Reading Capacity**

| | |
|---|---|
| TGIS-0017/0020/0304 | 16,000 readings |
| TGIS-1580 | 32,000 readings (16,000 readings per channel) |

| | |
|---|---|
| **Stop Options** | Run Indefinitely (overwrite oldest data), After a Specific Number of Readings, When Memory is Full |

## Features *(continued)*

### Alarms
The Tinytag Plus IS data loggers have a red LED which can be programmed to indicate when a property is out of specification. Alarms can be programmed to show only when a out-of-bounds condition is being met or, by latching them, to stay on and show that there has been a problem. Latched alarms need to be cleared using host software.

### LEDs

| Mode | Green Status LED |
|---|---|
| Waiting (Delay/Trigger start set) | 2 flashes every 4s |
| Logging, alarms not triggered | 1 flash every 4s |

If the data logger's alarms have been set and triggered the red warning LED will flash in place of the green status LED.

## Configuration and Connection

Tinytag Plus IS data loggers need to be configured using host Windows based software before they will record.

Please see the manual supplied with your software for details on how to connect your data logger to you PC and how to configure it.

Further information about host software can be found on the Tinytag web site.

## Physical Specification

| | |
|---|---|
| **IP Rating** | IP67 (see below) |
| **Operational Range*** | -40 ℃ to +85 ℃ (-40 ℉ to +185 ℉) |
| **Case Material** | Static-dissipative |
| **Case Dimensions** | |
|   Height | 34mm / 1.34" |
|   **Width** | |
|   TGIS-0017 | 51mm / 2.05" |
|   TGIS-0020 | 59mm / 2.32" |
|   TGIS-0304/1580 | 57mm / 2.25" |
|   **Depth** | 80mm / 3.15" |
| **Weight** | 100g / 3.5oz |

The IP67 rating, which does not include a unit's RH sensor (if fitted), is valid for temporary immersion to a depth of 1m (3.3ft) only when the unit's connector cap and any probes supplied are securely fitted.

If used at low temperatures data loggers should be allowed to warm to room temperature before they are opened to avoid condensation forming inside the unit.

*The ATEX certified ambient temperature limits are less than the operational range shown above. Refer to the ATEX certification section of this data sheet for conditions for safe use.

## Battery

| | |
|---|---|
| **Battery Type*** | Tekcell SBAA02P, SAFT LS14250 or LST14250 |
| **Replacement Interval** | Every 2 years |

*To comply with the unit's IS certification one of these three types of battery must be used in this logger.

⚠ **DO NOT REPLACE BATTERY WHEN AN EXPLOSIVE GAS ATMOSPHERE MAY BE PRESENT**

⚠ A cable tie must be used to secure the replacement battery**

Before replacing the battery the data logger must be stopped.

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

**A service kit, containing a battery, cable tie, gasket and desiccant pack, can be ordered from Tinytag suppliers using the part number SER-9530.
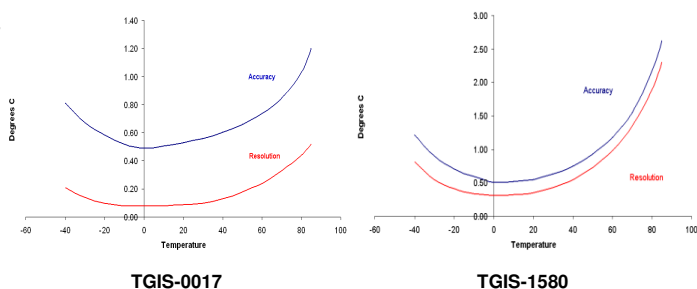
## Reading Specification

**Temperature (TGIS-0017/1580)**

| | |
|---|---|
| **Reading Range** | -40℃ to +85℃  (-40℉ to +185℉) |
| **Sensor Type** | 10K NTC Thermistor (Internally mounted) |
| **Response Time** | 25 min to 90% FSD in air |
| **Resolution and Accuracy** | |



**TGIS-0017**



**TGIS-1580**

**Temperature (TGIS-0020)**

| | |
|---|---|
| **Reading Range** | -40℃ to +125℃  (-40℉ to +257℉) |
| **For Use With** | Standard thermistor probe |
| **Logger Resolution and Accuracy*** | |
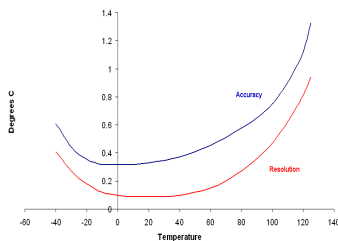


*The overall accuracy of this unit will depend on the probe used.

**Relative Humidity (TGIS-0304/1580)**

| | |
|---|---|
| **Reading Range** | 0% to 100% RH |
| **Sensor Type** | Capacitive |
| **Accuracy** | ±3.0% at 25℃ / 77℉ |
| **Reading Resolution** | Typically 0.5%RH |
| **Sensor Location** | External |
| **Response Time** | 10 seconds to 90% |

The working range for the RH sensor is shown (*right*) in terms of relative humidity / temperature limits.
Although the sensor will not fail beyond these limits, its accuracy will deteriorate.

If moisture forms on the unit's RH sensor readings will become unpredictable.  Once the sensor has dried out, and provided no residue is left behind, the unit should return to normal reading within 30 minutes.
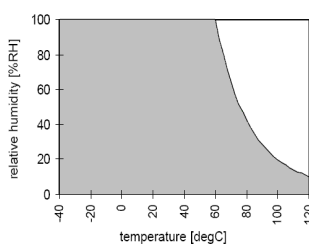


Any dust or residue that is allowed to build up on the RH sensor will affect the unit's reading accuracy.

The sensor may be cleaned with de-ionised water or pure isopropanol but not with abrasive detergents as scratches or residue will affect the accuracy.

## Reading Specification *(continued . . . )*

The sensor will resist small amounts of the following chemicals: formaldehyde, ammonia, carbon monoxide, sulphur dioxide, ethylene oxide, hydrogen chloride, hydrogen fluoride, hydrogen peroxide, nitrogen dioxide, methyl chloride, chlorine, freon, methanol, ethanol, isopropanol and ozone.  It also offers resistance to ultraviolet rays.

Salt solutions may cause permanent damage as crystals forming within the porous layers affect moisture levels there.

## ATEX Certification

Tinytag Plus Intrinsically Safe data loggers are certified for use in hazardous areas according to the following classification:

⟨Ex⟩ **II 1 G**
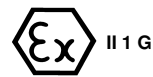
**Ex ia IIC T4 Ga (Ta = -30° to 40℃)**
**Ex ia IIC T3 Ga (Ta = -30° to 75℃)**

**Certificate: Sira 03ATEX2325X**

with the following conditions:

I.  Connection to the 3-pin socket (for communication with the host computer) may only be made when the Tinytag IS logger is in a non-hazardous area.
II. Connection must only be made to equipment fitted with a SELV power supply.
III.Only Tekcell SB-AA02P, SAFT LS14250 or LST14250 batteries may be used. Batteries must only be replaced in a non-hazardous area.

Tinytag Plus IS data loggers are clearly distinguishable from standard Tinytag data loggers by their black anti-static cases and yellow labelling.

They incorporate special components to ensure intrinsic safety in hazardous areas.

Any modification will invalidate the intrinsically safe certification.

Please refer to the EC Type Examination Certificate (ATEX Certificate) on www.tinytag.info/support for further details.

## 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 a Quality Management System which conforms to ISO 9001. The scope of the system covers the manufacture, design and supply of data loggers and their associated software, accessories and services.



## Warranty & Disposal

- This product carries 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 on request.

- **The equipment/goods are sold "as is" and with "all faults" (applies in USA). Claims under warranty should be referred to the point of sale.**

- Data loggers, accessories and batteries should be disposed of at organised facilities, where available, in line with local regulations.

- In accordance with the WEEE directive Gemini Data Loggers (UK) Ltd. will take back and dispose of any equipment purchased directly.  Equipment not purchased directly should be returned to the point of sale for disposal.