Tinytag Ultra 2 Thermocouple Manual
TGU-4550

⚠ Warnings

- This logger must be used in accordance with the information provided in this manual.

- This equipment contains a lithium battery. Do not cut open, incinerate, recharge or expose to temperatures in excess of 100°C (212°F). Danger of explosion if the battery is incorrectly fitted.

- The battery should only be replaced with the battery type specified in this document, observing the correct polarity.

- This equipment should only be connected to a computer using a CAB-0007-USB interface cable.

- This equipment should be used within the temperature range and other environmental conditions specified in this manual.

Getting Started

To use a Tinytag Ultra 2 thermocouple data logger you will require the following items:

- A copy of the Tinytag Explorer software
- A CAB-0007-USB download cable

Install Tinytag Explorer and the USB download cable, as described in the software's quick start guide and plug the USB cable into the socket on the front of the logger.

For further information on how to start the data logger recording and how to view the results from the unit, please see the Tinytag Explorer quick start guide.

Thermocouple Specific Configuration Options in Tinytag Explorer

When starting a thermocouple data logger in Tinytag Explorer you will see two options specific to this type of logger that are not mentioned in the software's quick start guide.

Thermocouple Type

Select the thermocouple type you are using from the options listed.
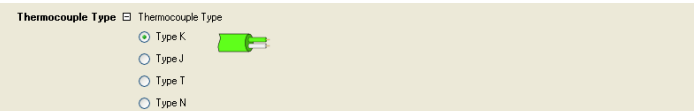
If you are unsure what type of thermocouple you have, the plug or cable on it may be coloured coded and you can match this to the diagram next to each option.

Colours for the different types of thermocouple are as follows:

Type K   Type J

Type T   Type N

Burnout Response

The burnout response option allows you to tell the data logger what to do in the event of a problem with the thermocouple being used.
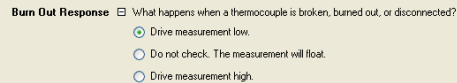
If a faulty thermocouple is attached to the data logger it is possible for the logger to show readings that may appear to be correct. The burnout response can deliberately drive readings low or high in the event of a problem, to make it clear to the user that there is a problem.

Choose what you want the data logger to do from the options listed.

Using the Thermocouple Data Logger

To get the best results, ensure that the data logger and the thermocouple plug have sufficient time to reach the same temperature before recording begins. If the thermocouple has been stored at a significantly different temperature from the logger, allow 30 minutes for stabilisation.

It is advisable to keep the logger at a constant temperature whilst recording, and to avoid large temperature gradients across the unit (for example, avoid placing the logger on a very hot or very cold surface).

Large fluctuations in logger temperature can cause temporary errors in the probe measurement, although these are unlikely to exceed 1°C.

Measurement Specification

Thermocouple

Sensor Type	Type K, J, T or N Thermocouple
Range	
Type K	-270 to +1370°C (-454 to 2498°F)
Type J	-210 to +1200°C (-346 to 2192°F)
Type T	-270 to +400°C (-454 to 752°F)
Type N	-270 to +1300°C (-454 to 2372°F)
Reading Resolution	0.01°C
Cold Junction Compensation	-10 to +70°C
Accuracy	Better than ±1.0°C across all thermocouple ranges when the logger is between -10 & +70°C.

Note: The above accuracy figures do not include the thermocouple probe.

Logger Temperature

Range	-40 to +85°C (-40 to +185°F)
Sensor Type	10K NTC Thermistor
Response Time	20 mins to 90% FSD in moving air
Reading Resolution	0.02°C or better
Accuracy	Better than ±0.5°C

Physical Specification

Logger

IP Rating	IP51
Working Temperature Range	-40 to +85°C (-40 to +185°F)
Case Dimensions	
Height	42mm / 2.83"
Width	60mm / 2.36"
Depth	33mm / 1.30"
Weight	65g / 2.29oz

Supplied Type K Thermocouple

Temperature Range	-100 to +250°C (-148 to 482°F)
Lead length	1m / 39.37"

Battery Information

The battery fitted in this product is a single cell containing less that 1g of lithium and meets the requirements of the UN Manual of Tests and Criteria, Part III, Subsection 38.3.

Recommended Battery Types	SAFT LS14250, Tekcell SBAA02P or Eve ER14250

The logger will operate with other ½AA 3.6V Lithium batteries but performance cannot be guaranteed.

Replacement Interval	Annually

Before replacing the battery the data logger must be stopped.

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

LED Flash Patterns

When logging, status LEDs on the front of the logger will flash as follows:

Flash Pattern	Indication
A green flash every 4 seconds	Logging
A green flash every 8 seconds	Waiting to log (set for a delayed start)
A red flash every 4 seconds	Alarm limit breached

For more information on the alarms and how they work, please see the Tinytag Explorer quick start guide and help file.

Notes

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 it.

The IP51 rating is valid only when the logger's connector cover is fitted and the unit is orientated with it's hanging tab uppermost.

Trigger Start

The trigger start option allows a logger 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 logger will flash once every eight seconds to indicate that it is waiting to start. When a magnet is swiped past 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.

Calibration

This logger is configured to meet Gemini's quoted specification during its manufacture.

We recommend that the calibration of the logger should be checked annually against a calibrated reference meter.

A certificate of calibration, traceable to national standards, can be supplied for an additional charge either at the point of purchase, or if the logger is returned for a service calibration.

Approvals

Gemini Data Loggers (UK) Ltd. operates a Business Management System which conforms to ISO 9001 and ISO 14001.

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Warranty

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.

Disposal

Data loggers, accessories and batteries should be disposed of at organised facilities, where available, in compliance 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.

Further Information

Further information on Tinytag data loggers, software and accessories can be found on our web site at:

www.tinytag.info

If you should have any further questions, please contact your distributor or:

Gemini Technical Support
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