

Tinytag Plus LAN Data Logger with Two Temperature & Relative Humidity Probes (-25 to +85°C/0 to 100% RH) x 2



- Ethernet connectivity (communicates across a LAN)
- Two temperature and relative humidity probes
- User programmable audible & visual alarm
- Alarm output, to trigger external device
- Power over Ethernet (PoE) with battery back-up
- Waterproof case
- Tinytag Connect compatible

The TE-4502 is a temperature and relative humidity data logger that plugs directly into a network point and communicates across a LAN.

The logger can be managed as a standalone logger, in conjunction with the standard version of Tinytag Explorer, or as part of a network of loggers, using Tinytag Connect software.

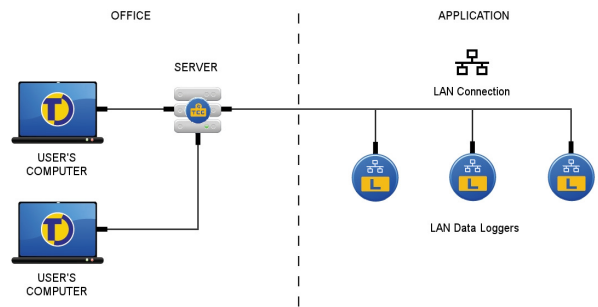
The data logger measures temperature and relative humidity using two probes.

The logger records data at user-defined logging intervals and can be programmed to give alarm alerts, both audible and visual, in the event of a problem. The logger also has an alarm output that changes state when alarms are active.

Standalone

When used as a standalone device, the logger connects to a standard version of Tinytag Explorer across a LAN and is downloaded and configured directly.

Tinytag Connect



When used as part of a Tinytag Connect system, the logger transmits data to a Windows service that runs the system, called the Connect Gateway. This data is then viewed, and loggers configured, using the Connect version of Tinytag Explorer.

Multiple users can access the Connect system simultaneously.

If a logger cannot communicate with the system for any reason, data will be recorded locally until communications are restored, ensuring no data is lost.

The Connect system can also send e-mail warnings when alarm limits are exceeded.

Working With the Data

Using Tinytag Explorer, data recorded by the logger can be viewed as a graph or as a table of readings. There are also summary views containing information about the recording and a daily min/max view.

Data from multiple devices recording at the same time can be combined into a single graph.

Graphical data can be exported from the software as an image, for use in report writing or presentations, or as a data table, for further analysis in third-party spreadsheet and data base programs.

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Data Logging

This data logger will turn on and start recording as soon as it is plugged into a Power over Ethernet (PoE) supply (it can also be turned on before that by pressing and holding the logger's Mute button briefly) .

Logging Interval	2 minutes to 10 days
Default Logging Interval	10 minutes
Logging/Off-line Capacity	361 days typical, at a 10 minute logging interval

The logging/off-line capacity for a data logger, for any given logging interval, is stated at the bottom of the configuration page in Tinytag Explorer when the logger is programmed.

Standalone Mode

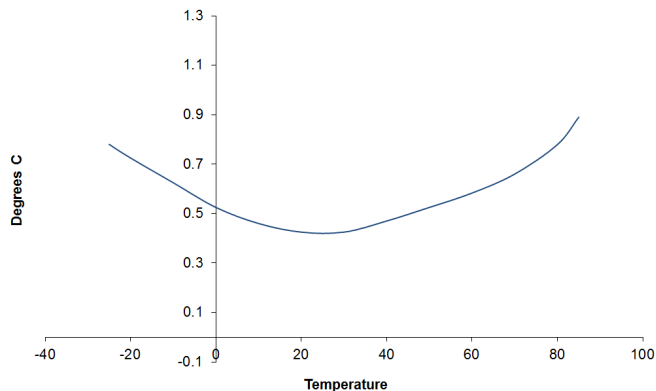
If being used as a standalone device, the logger should be launched using Tinytag Explorer to ensure its clock is set correctly.

Reading Specification

Temperature

Reading Range	-25°C to +85°C (x2)
Sensor Type	10K NTC Thermistor
Response Time	10mins to 90% of the reading change (in moving air)
Logger Resolution	0.01 °C or better

Logger Accuracy



Relative Humidity

Reading Range	0 to 100% RH (x2)
Accuracy	±3.0% RH
Reading Resolution	0.04% RH
Response Time	16 seconds to 90% of the reading change (in moving air)
Stability	Better than 1% per year (typical)

If moisture forms on the RH sensor readings may become unpredictable.

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

The sensor may be cleaned with compressed air.

Physical Specification

IP Rating	IP67*
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*Applies only if the supplied waterproof shroud for the Ethernet connection is fitted.

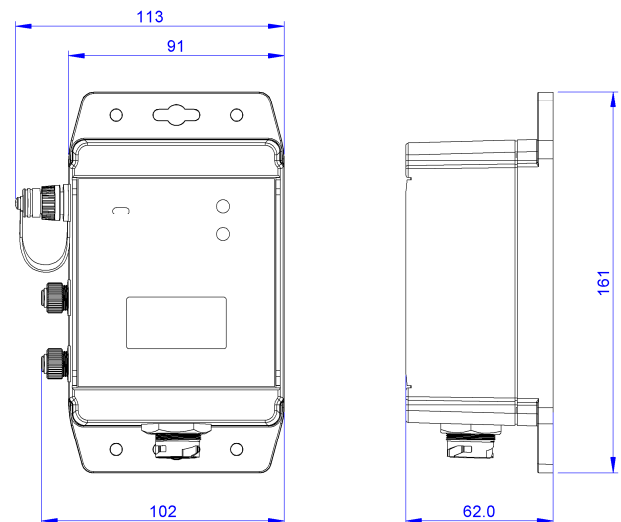
This data logger is for indoor use only. The waterproofing provided by the connector shroud is to protect against ingress in indoor applications when condensation or liquids may be present.

Operational Range**	-20°C to +55°C
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Case Dimensions

Length/Height	161mm / 6.34"
Width	113mm / 4.45"
Depth	62mm / 2.44"
Weight	402g / 14.18oz

**The Operational Range indicates the physical limits to which the unit can be exposed.



Probe

A **PBRF-8001** temperature and relative humidity probe and **CAB-0034** sensor extension cable are provided with the data logger.

IP Rating	IP20
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Operational Range*	-25°C to +85°C
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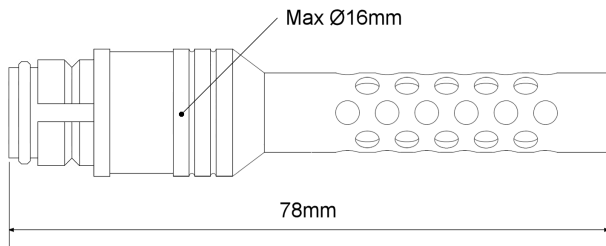
Dimensions

Probe Length (excluding cable)	78mm / 3.07"
Maximum Diameter	16mm / 0.63"
Cable Length	1.5m / 59.055'
Weight	76g / 2.68oz

*The Operational Range indicates the physical limits to which the probe and cable can be exposed.

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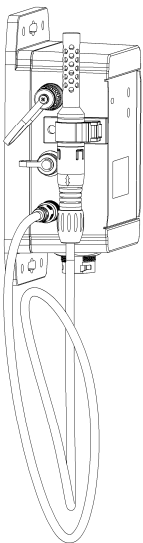
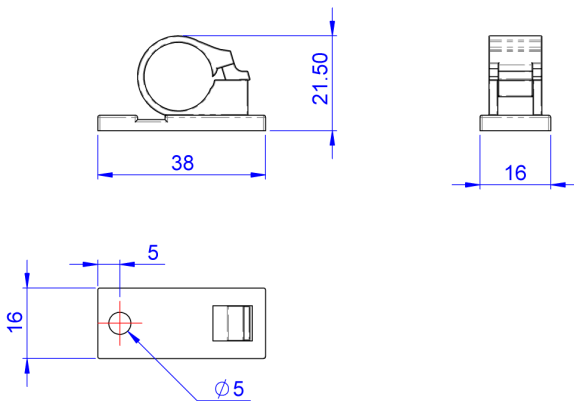
Physical Specification



Probe Mounting Instructions

Mounting clips are supplied with the logger for fixing the probes to the logger or a wall.

The clips have a self-adhesive pad for mounting the probe on the side of the logger or a flat surface, and a 5mm diameter screw hole for fixing it to walls or shelving etc.

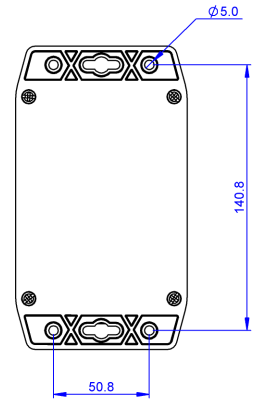


Suggested positioning for the RH probe if using the supplied clip to mount it on the logger.

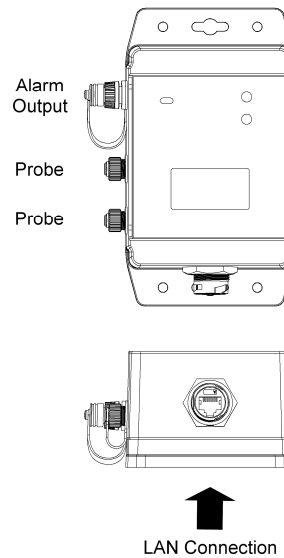
Mounting Instructions

The logger can be wall mounted or placed on its back on a flat surface, such as a shelf.

The logger's back-plate has mounting holes, as shown.



Connections



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Power Information

This logger is a PoE (Power over Ethernet) device that is powered from its Ethernet connection (a PoE injector is supplied).

In the event of a failure of the PoE supply, the logger has a battery back-up that will keep it recording (communications will be suspended until power is restored).

Back-up Battery Power

Battery Type 2 x Duracell Industrial ID1500 AA (LR6) 1.5V (supplied)

The logger will operate with other AA cell batteries but performance cannot be guaranteed.

When the logger's back-up batteries start to run flat, the LED on the front of the logger will flash red. If being used as part of a Tinytag Connect system, a low battery warning will be displayed in the Tinytag Explorer Connect software. The low battery warnings will start to show when the logger has approximately two weeks of battery power remaining.

Before replacing batteries the logger must be disconnected from the LAN and turned off.

Alkaline batteries should always be replaced in pairs.

Data stored in the logger will be retained after its batteries are replaced.

LED Flash Patterns

Ethernet Radio Receivers and LAN data loggers have two status LEDs; one to show the status of the logger's Ethernet connection (yellow/blue) and the second to show the status of the unit (green/red).

Action	LED	Status/Operation
n/a	No Indicators	Device is powered off
n/a	Red flash every 4 seconds	The device is powered on and has a problem. Either: a) Battery is low or b) An alarm indicator is signalled. Check the nature of the problem using Tinytag Explorer.
n/a	Green flash every 4 seconds	The device is powered on, and does not have any problems.
Press and briefly hold the mute switch.	Green indicator shows for one second. It then briefly flashes green then red.	The device has been switched on.
Press and hold the mute switch for 3 seconds.	Red indicator shows for one second.	The device has been switched off.
n/a	Yellow indicator on constantly	The device is being powered from its Ethernet connection, but no communications have been established.
n/a	Blue (flickering)	Ethernet communications are established and on-going

Note that the yellow and blue LEDs cannot be on at the same time. If the blue LED is on (or flickering) then PoE power must be available.

Alarms

LAN data loggers can be programmed with alarm limits to warn when a property has gone out of specification.

Alarms	2 fully programmable, latching alarms (per channel)
Alarm Delay	1 second to 10 days
Alarm Indicators	Visual (LED) & audible (sounder)
Alarm Output	3-pin, powered output that changes state when alarms are active (see below)

Tinytag Connect

When used as part of a Tinytag Connect system, an on-screen alarm indication is also shown in the Tinytag Explorer Connect software.

E-mail warnings can be sent from the Tinytag Connect system when alarm limits are breached, and these in turn can be used to send SMS messages using third-party messaging services.

External Alarm Output

The alarm output has a signal line that changes state when alarms are active and it can also supply power to an external device.

Connection Information

An output cable (part number CAB-0041, supplied separately) is used to connect the logger to an external device.

The wiring connections are as follows:

Colour	Connection
Brown	Power
Green	Ground
White	Signal

Both the Power (brown) and Signal (white) outputs are protected by a 350mA self-resetting fuse.

Signal Specification

This is an open-drain output that is pulled to Ground when an alarm is active (otherwise it is open-circuit). This output will continue to change state, in the event of an alarm, should the PoE supply to the logger fail.

Note that muting the internal alarm sounder, by pressing the mute button on the front of the logger, will also turn off the output. If required, the connection should be held on (latched) by external equipment until it is explicitly acknowledged.

Power Specification

The power output is regulated at 11.5V ±0.5V from the PoE supply. The output voltage will therefore turn off if the PoE supply fails.

Warnings

- The alarm cable and connector must not be connected to any voltage more than 50V away from earth potential, including mains voltages
- Maximum current through any connection: 200mA
- Maximum voltage on the Signal output (relative to Ground): 30V

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Calibration

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

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

A traceable certificate of calibration can be supplied for an additional charge either at the point of purchase, or if the unit is returned for a Service Calibration.

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 our standard Terms and Conditions of Sale, a copy of which can be found at www.tinytag.info.

Approvals

Gemini Data Loggers (UK) Limited hereby declares that this data logger is in compliance with the essential requirements and other relevant provisions of EMC directive 2014/30/EU and RoHS directive 2011/65/EU. A copy of the declaration of conformity is available upon request.

This logger also conforms to the following EMC standards EN 61326-1:2013, FCC/CFR 47:Part 15:2016 & Canadian Standard ICES-003:Issue 6.

This logger also complies with (RJ45) 10/100Mb Base-T for Ethernet connectivity and PoE standard IEEE 802.3af.

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



Required and Related Products

Required Parts

Two Ethernet cables (not supplied) are required to connect this receiver to a LAN.

This logger is a PoE device and is supplied with a PoE injector as standard. If the logger is being used on a powered network, or a number of loggers are being connected to a powered hub, this product can be supplied without the injector.

When used as a standalone device, a copy of the following software is required:

SWCD-0040 Tinytag Explorer

When used as part of a Tinytag Connect system, a copy of the following software is required:

SWCD-0080 Tinytag Explorer Connect

Probes

This logger uses 2 x **PBRF-8001** probes, which are fitted to the loggers using **CAB-0034** extension cables for Plus & Ultra radio temp/RH probes, 1.5m (two of each of these are supplied with the logger).

If a cable length of greater than 1.5m (up to a maximum of 10m) is required, an additional **CAB-0040-XM** cable will be required.

2 x **ACS-0045** Radio RH Probe Clips are also supplied with the logger.

Further Related Products

ACS-0040 RJ45 waterproof (IP67) Shroud (supplied)

ACS-0041 PoE Injector (supplied)

CAB-0040-XM Connection cable for Radio temp/RH probes (up to 10m)

CAB-0041 Plus LAN alarm output lead