

## Tinytag Ultra Radio Receiver (with Temperature and Relative Humidity Monitoring) (-20 to +55°C/0 to 95% RH)



Tinytag Ultra Radio data loggers are a range of wireless data loggers products designed for indoor use. The loggers are used as part of a Tinytag Connect system that forms a robust data network that allows a user to see the conditions within an application from their own desk, across a LAN or the Internet.

Housed in a discreet case, the ACSR-5600 is a receiver for the Tinytag Connect system. The receiver also incorporates temperature and relative humidity sensors to make it more versatile.

### Features

- Radio receiver with temperature and relative humidity monitoring
- Robust data network
- Easy to install
- Alarm e-mails
- 200m typical range (line of sight)
- High accuracy and reading resolution
- Mains powered with battery back-up
- Low battery monitor
- User-replaceable battery

### Popular Applications

Use to monitor temperature and relative humidity in:

- Art galleries and museums
- Schools and educational establishments
- Office and workplaces
- Light Industry and warehouses

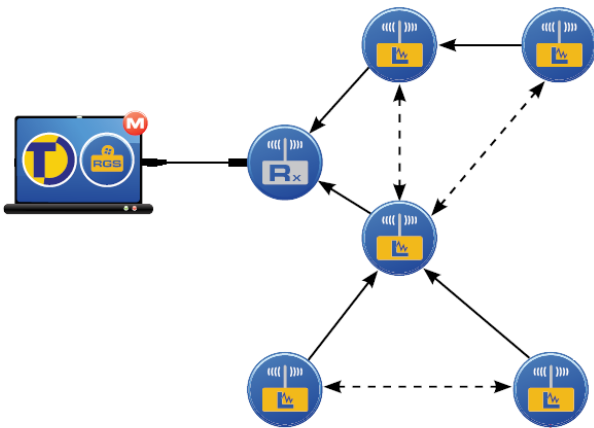
## Tinytag Ultra Radio Receiver (with Temperature and Relative Humidity Monitoring) (-20 to +55°C/0 to 95% RH)

### How the Receiver Works

The ACSR-5600 is a mains powered receiver that can also record temperature and relative humidity.

The receiver is used as part of a Tinytag Connect system that requires a receiver and the Connect version of the Tinytag Explorer software.

After the software has been installed and configured, the receiver will form part of a mesh network where it will then control the transmission of data to and from the radio system.



The typical range of the receiver on a clear line of sight is 200m.

The receiver is then set to record at a user-defined logging interval, anything from once every 2 minutes to once every 10 days.

The data recorded by the receiver is stored on the computer running the system by a Windows service (called the radio gateway) and this is then viewed across a LAN or the Internet through the Tinytag Explorer Connect software.

If power to the computer running the system goes down, the receiver will maintain the mesh network until power is restored.

The receiver can be programmed with alarms. Warning e-mails can be sent when the limits entered are exceeded.

Data recorded by the system can be viewed as a graph or as a table of readings. There are also summary views containing information about the recording run and a daily min/max view.

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

Data can be exported from the software as a graph image, for use in report writing, or as a data table, for further analysis in third-party spreadsheet programs.

### Features

<b>Logging Interval</b>	2 minutes to 10 days
<b>Off-line storage Capacity*</b>	2 weeks typical, at a 10 minute logging interval

The receiver can be set to record in intervals of once every 2 minutes or greater (by default the logging interval is set to once every 10 minutes).

When a connection to the host computer is present, data is transmitted immediately and stored by the gateway service.

When communications with the gateway service are interrupted, by a power failure to the computer running the gateway, the receiver will record locally and then transmit data when communications are restored.

The off-line storage capacity of the receiver, for any given logging interval, is stated at the bottom of the configuration page for it in the Tinytag Explorer Connect software (this will be a minimum of 2 weeks when set to record at the default 10 minute logging interval).

\*The local storage capacity of the receiver is an indication of how much data the unit can record when it is unable to communicate with a gateway.

<b>Alarms</b>	2 fully programmable, latching alarms
<b>Alarm Delay</b>	1 second to 10 days

Receivers can be programmed with alarm limits that will cause warnings to be shown in Tinytag Explorer Connect and to make the units LED flash red.

Two alarm limits can be programmed per channel, allowing upper and lower boundaries to be set.

Delays can be set on the alarms so that routine tasks, such as restocking a fridge or freezer, can be performed without causing alarms to be activated.

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

### Radio Specification

<b>Radio Frequency</b>	<b>EU</b>	869.88MHz (-A part numbers)
	<b>AUS</b>	917.8MHz (-B part numbers)
<b>Radio Power</b>	<b>EU</b>	<5mW (-A part numbers)
	<b>AUS</b>	<3mW (-B part numbers)
<b>Radio Range</b>		200m, typical (line of sight)
<b>Radio License</b>		SRD licence-free

The logger uses FSK modulation, with +/-32 kHz deviation.

These frequencies will easily penetrate most internal walls, but the range may be reduced to between 30% and 80% (however it will sometimes be increased, maybe up to double the nominal range, due to reflections off walls and roofs etc.).

Although the radio waves cannot penetrate a metal wall (fridges or corrugated iron sheds etc.) the signal will often still get through gaps around door seals, windows and air vents etc.

These frequencies are very slightly absorbed by water. Wet walls are not a problem, but the signal will not get through a room filled with shelves full of fruit or bottled water, for example.

The advantage of the mesh network, though, is that loggers in locations with shorter ranges will often be able to relay data through other loggers that are able to transmit further.

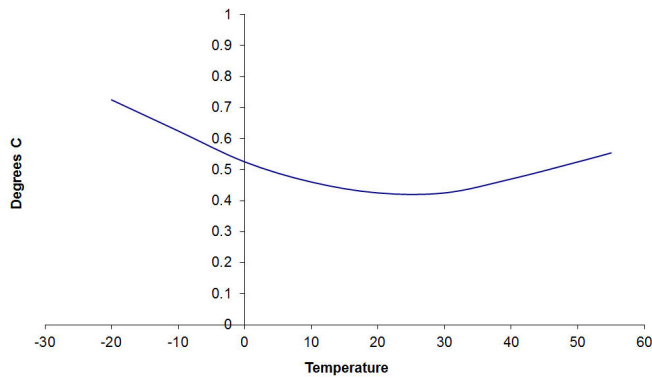
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### Reading Specification

#### Temperature

<b>Reading Range</b>	-20°C to +55°C
<b>Sensor Type</b>	Digital (Integral)
<b>Response Time</b>	10mins to 90% FSD in moving air
<b>Logger Resolution</b>	0.01°C or better

#### Logger Accuracy



#### Relative Humidity

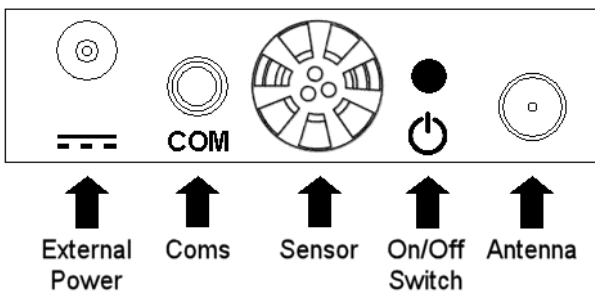
<b>Reading Range</b>	0 to 95% RH
<b>Accuracy</b>	±3.0% RH
<b>Reading Resolution</b>	0.04% RH
<b>Response Time</b>	8 minutes to 90% FSD (in moving air)
<b>Stability</b>	Better than 1% per year (typical)

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

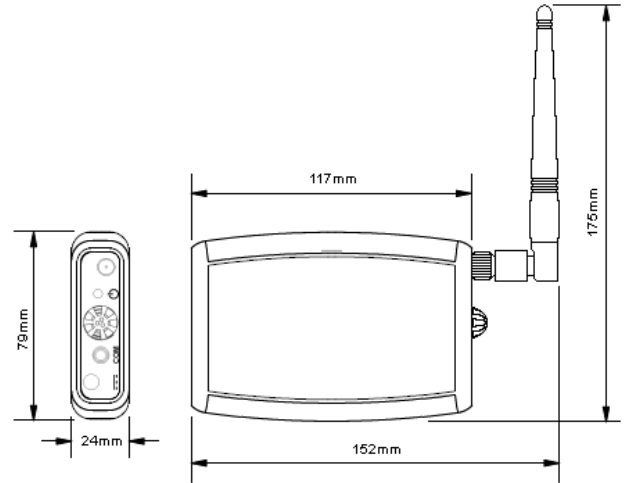
Any dust or residue that is allowed to build up on the RH sensor will affect the reading accuracy.

The sensor may be cleaned with compressed air.

### Connections



### Physical Specification



#### IP Rating

IP20

#### Operational Range\*

-20°C to +55°C

#### Case Dimensions (excluding antenna)

<b>Length</b>	121mm / 4.76"
<b>Width</b>	79mm / 3.11"
<b>Depth</b>	24mm / 0.94"
<b>Weight (inc. antenna)</b>	180g / 6.35oz

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

### Mounting Instructions



The receiver is supplied with a bracket for easy wall mounting.

This comes in two parts; a bracket that screws onto the wall and a clip that screws into the receiver. When fitted, the clip slots into the bracket.

The two mounting holes on the bracket are 3mm in diameter and 32mm apart.



The receiver can also be positioned on a non-conductive flat surface, such as a desk or a shelf, with its antenna positioned vertically, with no loss of performance.

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### Power Information

This receiver is designed to be powered from the mains and has a battery back-up that will keep the receiver working if the power to it fails. If it is not practical to have the receiver plugged into the mains, it can be powered by its batteries.

#### Mains Power

The receiver is supplied with a plug-in power supply.

**Note: This receiver should only be used with an ACS-0005 Tinytag power supply.**

#### Battery Power

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

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

**Battery Life** Up to 12 months

When the receiver's batteries start to run flat a low battery warning will be displayed in the Tinytag Explorer Connect software and the LED on the front of the receiver will flash red. The low battery warnings will start to flash when the receiver has approximately two weeks of battery power remaining.

Before replacing batteries the receiver must be turned off.

Alkaline batteries should always be replaced in pairs.

Data stored in the radio system will be retained after batteries are replaced.

### Notes

Apart from the battery enclosure, this receiver contains no user-serviceable parts and should not be opened.

### Calibration

This receiver 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](http://www.tinytag.info).

### Approvals

Gemini Data Loggers (UK) Limited hereby declares that this radio data logger is in compliance with the essential requirements and other relevant provisions of RED 2014/53/EU and RoHS directive 2011/65/EU. A copy of the declaration of conformity is available upon request.

The radio system also complies with EN 300 220:V2.4.1 and EN 301 489-3: V1.6.1 (-A EU version) and AS/NZS 4268:2012 (-B AUS version).

This logger also conforms to the following EMC standards:  
EN 55032:2012; EN 61326-1:2013 & EN 301 489-1:V1.9.2.

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



### Required and Related Products

#### Required Parts

Receivers are supplied in a pack with a USB communications cable and a plug-in power supply.

This receiver forms part of a Tinytag Connect system and cannot be used as a standalone device.

To use this receiver you will require a Connect version of the Tinytag Explorer software, as follows:

**SWCD-0080** Tinytag Explorer Connect Software

#### Further Related Products

**CAB-0033** Ultra Radio Receiver USB Cable (5m)

**ACS-0005** Power Supply for Ultra Radio