ACSR-3030

Tinytag

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 Radio 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-3030 is the receiver for the Tinytag Ultra Radio 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
- 100m 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

www.tinytag.info
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Gemini DATA LOGGERS

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How the Receiver Works

The ACSR-3030 is a mains powered receiver that can also record temperature and relative humidity.

The receiver is used as part of a Tinytag Radio system that requires the radio 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.
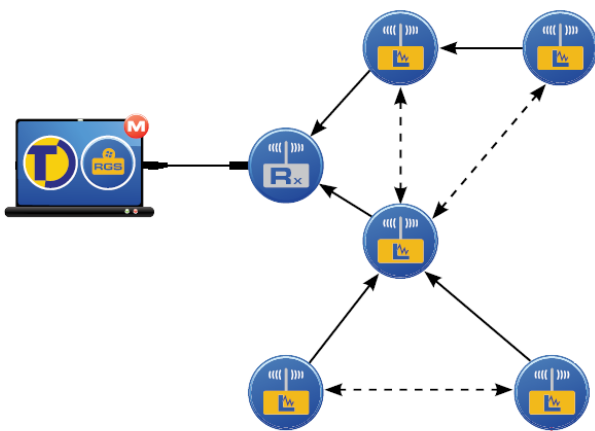
The typical range of the receiver on a clear line of sight is 100m.

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 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.

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

Logging Interval	2 minutes to 10 days
Off-line storage Capacity*	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 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.

Alarms	2 fully programmable, latching alarms
Alarm Delay	1 second to 10 days

Receivers can be programmed with alarm limits that will cause warnings to be shown in Tinytag Explorer 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 of 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

Radio Frequency	EU	869.88MHz (-A part numbers)
	AUS	917.8MHz (-B part numbers)
Radio Power	EU	<5mW (-A part numbers)
	AUS	<3mW (-B part numbers)
Radio Range		100m, typical (line of sight)
Radio License		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 though other loggers that are able to transmit further.
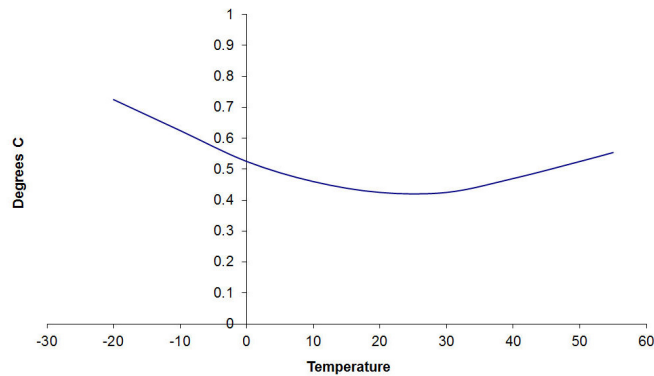
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Reading Specification

Temperature

Reading Range	-20℃ to +55℃
Sensor Type	10K NTC Thermistor (Integral)
Response Time	10mins to 90% FSD in moving air
Logger Resolution	0.01℃ or better

Logger Accuracy

Relative Humidity

Reading Range	0 to 95% RH
Accuracy	±3.0% RH
Reading Resolution	0.04% RH
Response Time	40 seconds to 90% FSD
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.

Connections

External Power | Coms | Sensor | On/Off Switch | Antenna
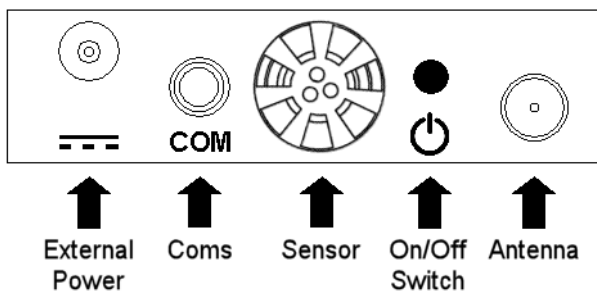
Physical Specification

IP Rating	IP20
Operational Range*	-20℃ to +55℃
Case Dimensions (excluding antenna)	
Length	121mm / 4.76"
Width	79mm / 3.11"
Depth	24mm / 0.94"
Weight (inc. antenna)	180g / 6.35oz

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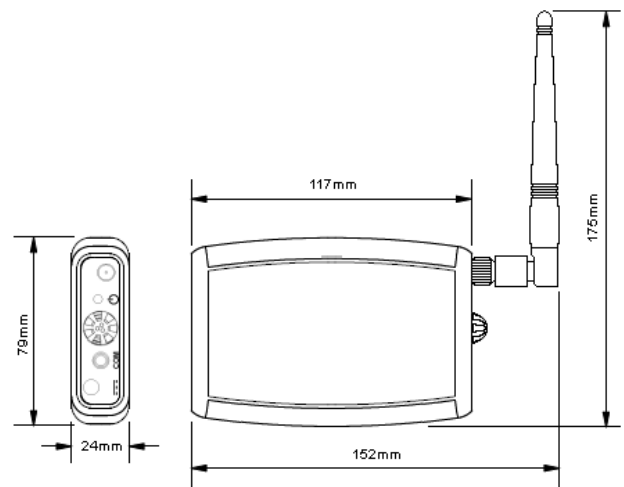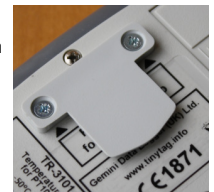

Mounting

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 logger 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 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**.

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 Directive 1999/5/EC. A copy of the declaration of conformity is available upon request.

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

This receiver also conforms to the following EMC standards:
EN 55022:2010 inc AC:2011; EN 61326-1:2013 Table 1; EN 301 489-1:V1.9.2 & EN 301 489-3:V1.6.1:2002.

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

Required and Related Products

Required Parts

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

To use this receiver you will require a radio enabled version of the Tinytag Explorer software.

Receivers are usually supplied in a pack with a USB communications cable, a plug-in power supply and a radio enabled copy of the Tinytag Explorer software:

ACSR-3030-PK Ultra Radio Receiver Pack

Additional receivers can be purchased using the part number ACSR-3030, these are supplied with USB communication cables.

Further Related Products

CAB-0033 Ultra Radio Receiver USB Cable (5m)
ACS-0005 Power Supply for Ultra Radio

Ultra Radio Range

Loggers in the Ultra Radio range include:

TR-3020 Tinytag Ultra Radio Temperature logger (-20 to +55°C)
TR-3101 Tinytag Ultra Radio Temperature Data Logger for PT100 Probe (-50 to +600°C)
TR-3201 Tinytag Ultra Radio Temperature Data Logger for PT1000 Probe (-200 to +100°C)
TR-3500 Tinytag Ultra Radio Temperature & Relative Humidity Data Logger (-20 to +55°C/0 to 95% RH)
TR-3505 Tinytag Ultra Radio Data Logger with Temperature & Relative Humidity Probe (-40 to +85°C/0 to 100% RH)
TR-3703 Tinytag Ultra Radio Voltage Data Logger (0 to 2.5V DC)
TR-3704 Tinytag Ultra Radio Voltage Data Logger (0 to 25V DC)
TR-3804 Tinytag Ultra Radio Current Data Logger (0 to 25mA DC)
TR-1201 Tinytag Ultra Radio Count Data Logger (0 to 32k counts per logging interval)