Space Mounting Battery Powered Radio RH&T Sensors

Features

- Up to 5 years battery life
- High quality internal antenna
- Encrypted data transmission
- Configurable parameters

Specification

Radio Output:	
Frequency	2.4GHz
16 channels, automatically selected	
Direct-sequence spread spectrum	
Compliance	IEEE 802.15.4-2006
Aerial Characteristics	
Gain	1.2dBi
VSWR	1.5:1
Data Encryption:	AES 128
Power Output:	+0dBm
Accuracy:	
Temperature	±0.3°C
RH	±3% RH
Battery Type:	3.6V AA Li-$SOCl_2$, non-rechargeable
Battery Life:	>3 years (depending on configuration)
Housing Material:	ABS (flame retardant)
Dimensions:	85 x 85 x 23mm
Environmental:	
Operating:	
Temperature	-10°C to +50°C
RH	0 to 90%, non-condensing
Storage:	
Temperature	-10°C to +80°C
RH	0 to 90%, non-condensing
Country of origin:	UK

Product Codes

RF-RS-R-911 - Battery powered radio RH&T sensor

RF-RS-R-911-SP - Battery powered radio RH&T sensor c/w setpoint adjustment

RF-RS-R-911-MS - Battery powered radio RH&T sensor c/w momentary switch

RF-RS-R-911-SP-MS - Battery powered radio RH&T sensor c/w setpoint adjustment and momentary switch

Technical Overview

The radio RH&T sensors are used in conjunction with the Sontay® **RF-RX20** or **RF-RX40** receiver units, and if required (depending on installation topography), Sontay® **RF-RR** series of router radio sensors.

Routers are used to route signals from battery powered nodes and other routers to the receiver module, where the signal strength of a direct path is not sufficient for reliable communications.

Data is transmitted back to the receiver at configurable time intervals, or on a configurable change in measured value. Each sensor retains these configurations if the battery becomes discharged or requires replacement.

The sensors, routers and receiver automatically select which of the 16 transmission channels available gives the best radio network performance, taking into account both signal strength and interference levels from adjacent channels and equipment (such as Wi-Fi etc.)

The sensors and routers automatically find the best path back to the receiver, which may be directly to the receiver or via "parent" routers.

NB Each router can support a maximum of 16 "children", a maximum of 8 of which can be battery powered "end devices" and a maximum of which can be 8 routers. Consideration should be given on network planning for redundancy in case of router failure or damage.

Interface Options:

-BL	Black housing
-BW	Brilliant white housing
-SP	Set point
-MS	Momentary switch

Labels

Labels are available in plain, pre-printed or customer print types and a choice of either dark grey or white.

Colours

The basic housing, set point knob and momentary switch are available in either white or black. The momentary switch is a tactile type, located behind the label.

Installation

1. Remove all packaging from the sensor
2. Note the MAC address printed on the affixed label and note where this MAC address is installed.
3. Remove the rear mounting plate and install the Li-$SOCl_2$ AA battery, observing the correct polarity.
4. Enable power by fitting the jumper J400 across both pins of the 2-pin header while pressing the reset button. This resets the hours run counter for the battery.
5. Using the base as a template mark the hole centres and fix to the wall with suitable screws. Alternatively the base plate can be mounted on to a conduit box or a standard recessed back box.
6. Mount the sensor in the required position (this will have been determined by the site survey tool, (see the quick start guide and manual for further details), taking care *not* to site the sensor;
   - In direct sunlight or near a source of heat
   - On a cold or hot outside wall, where conducted or radiant heat may affect the accuracy
   - Behind any obstruction likely to impede the radio signal (for example, a filing cabinet)
7. Take care to mount the sensor in the correct orientation, with the tamperproof screw at the bottom, to allow free flow of air over the sensor element. Ensure that the louvers in the sensor housing are clear and free from obstruction.
8. The sensor should be mounted between 1.5m and 2m up from floor level.
9. Ensure, at a minimum, that all routers and the receiver on the radio network are powered on, and allow about 5 minutes for the network to auto-commission before attempting to read values or make configuration changes.

Battery Fitting and Replacement

The current battery level of a sensor can be monitored using the CMS software connected to the receiver. When a battery is first installed, or when it is replaced, observe the correct polarity. **Fitting the battery incorrectly may result in permanent damage to the sensor**. Remove the power jumper prior to removing a battery. After fitting a battery, replace the power jumper and then press the reset button once to reset the hours run data.

NB Lithium-Thionyl Chloride batteries are **not rechargeable**, and should be stored in a clean, cool (not exceeding +30°C), dry and ventilated area.

Disposal of Batteries - Warning! Fire, Explosion and Burn Hazard.

Do not recharge, short-circuit, crush, disassemble, heat above 100°C (212°F), incinerate, or expose the battery contents to water. Do not solder directly to the cell.

All batteries must be disposed of in accordance with EC Directive 2006/66/EC, amended by EU Directive 2008/12/EC.