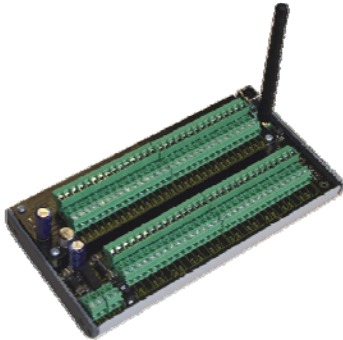


Radio Sensor System Receiver



Features

- High power output
- High quality external whip antenna
- Encrypted data transmission
- 20 or 40 output variants
- DIN mounting
- Short-circuit protected analogue outputs
- Overvoltage protected analogue outputs to +36V

Specification

Radio Output:

Frequency 2.4GHz
 16 channels, automatically selected
 Direct-sequence spread spectrum
 Compliance IEEE 802.15.4-2006

Aerial Characteristics

Gain 2.0dBi
 VSWR <2:1

Data Encryption: AES 128

Power Output: +10dBm

Power Supply:

24Vdc ±15%
 24Vac ±15%, 50/60 Hz

Fuses:

Power supply 20mm, 250V, 500mA, Anti-surge
 Alarm 20mm, 250V, 250mA, Fast-acting

Serial communications: USB 2.0

Alarm output indication for:

Low battery
 Node 'off-line'
 Out-of-limit sensor value

Outputs:

RF-RX20 20 x 0-10Vdc @ 10mA each
RF-RX40 40 x 0-10Vdc @ 10mA each

Output ranges:

Temperature -10°C to +70°C
 RH 0% to +100%
 Setpoint 0% to +100%
 Switch 0Vdc = OFF, 10Vdc = ON

Output accuracy: ±2% of output range

Alarm output Reed relay, 24V @50mA max.

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

Dimensions: 105mmH x 202mmW x 45mmD

Country of origin: UK

Product Codes

RF-RX20 Radio sensor system receiver, 20 output

RF-RX40 Radio sensor system receiver, 40 output

RF-AERIAL-PM2

Coaxial extension cable for externally mounted aerial - 2m length

RF-AERIAL-PM5

Coaxial extension cable for externally mounted aerial - 5m length

Technical Overview

The radio receiver is used in conjunction with the Sontay® **RF-RR** and **RF-RS** 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.

Power Connections

The receiver requires a 24V supply, either AC or DC. Observe power connections polarity.

Configuration

The receiver outputs must be configured so as to be associated with individual sensor parameters, such as temperature, RH, setpoint value or switch state. Use the Sontay **CMS** for configuration (see the CMS quick start guide and manual for further details).

LED Indication

D603 remains ON whilst the receiver has children and will flash if the receiver has no children. D604 indicates radio traffic.

Installation

1. Remove all packaging from the receiver
2. Note the MAC address printed on the affixed label and note where this MAC address is installed.
3. Mount the receiver 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 receiver behind any obstruction likely to impede the radio signal
4. Fix the receiver to the DIN rail
5. **NB** If the receiver is to be mounted in a metal enclosure, it is **essential** that the aerial is mounted externally. A 1m coaxial extension cable assembly is available for this option.
6. 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.
7. Ensure the antenna is positioned in a vertical alignment.
8. Observe correct polarity if using a 24Vdc power supply.
9. To power on the unit, move the power switch to the ON position.

Common Alarm Output

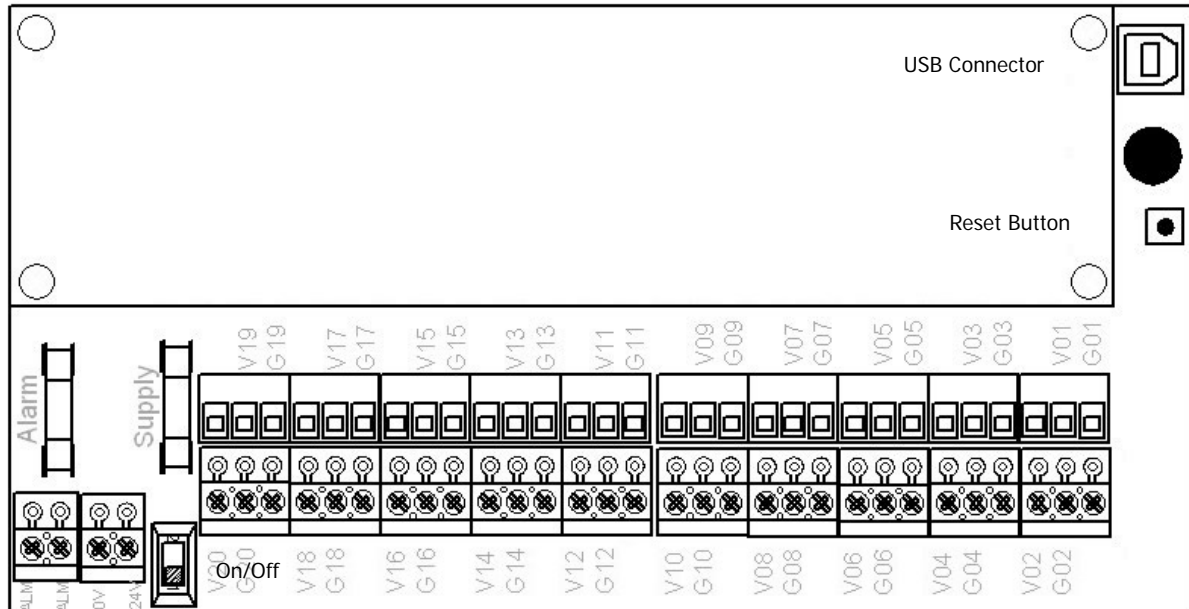
The **RF-RX** receivers have a reed relay output for indication of common alarm conditions. This relay will energise if *any* of the battery powered nodes or 24V routers are offline, have a low battery or have an out-of-limits sensor parameter reading (indicating a damaged sensor element, for example).

The relay output is energized for 15 seconds, and resets to enable further alarms to be processed.

The relay output is polarity independent.

Connections

RF-RX20 Outputs



Terminal Assignments:

G = Common 0V

V = 0-10Vdc output

Example: Output 2, G02 = 0V, V02 = 0-10Vdc

RF-RX40 Outputs

