Timpdon Electronics

UltraRad Radio System
Repeater Model *UTR1*

The ***UltraRad*** Radio Repeater Model ***UTX1*** is designed to be used with any ***UltraRad*** radio control system both to extend the range of standard ***UltraRad*** transmitters and to provide a means of improving radio coverage in awkward shielded pockets of your garden railway.

The ***UTR1*** Radio Repeater can be used with both the ***UltraRad*** Vehicle Control System and the ***UltraRad*** Points Control System

It incorporates both an ***UltraRad*** radio receiver and transmitter, and automatically re-transmits all standard ***UltraRad*** transmissions received after a delay of a few milliseconds.

The ***UTR1*** must be used in conjunction with a standard ***UltraRad*** transmitter.

It complies fully with all UK legislation for licence free operation.

Specification

Frequency	433.92 MHz
Radiated Power	+10 dBm [10 mW]
Modulation	Frequency Modulation
Duty Cycle	9% maximum
Range	Up to 30 metres with ***URX1*** receiver, in a normal model railway or garden environment
Size	111mm x 66mm x 50mm
Weight	150g
Batteries	9V PP3 Battery, primary or re-chargeable.
Battery Life	Up to 35 hours continuous operation with high power 550 mAh battery supplied.

Timpdon Electronics **Tel 0161 - 980 7804**
Web www.timpdon.co.uk
EMail sales@timpdon.co.uk

Issue 1 – April 2010

Operation

The ***UltraRad*** radio receiver within the ***UTR1*** repeater continuously monitors the ***UltraRad*** frequency band for valid transmissions from any ***UltraRad*** transmitter within range.

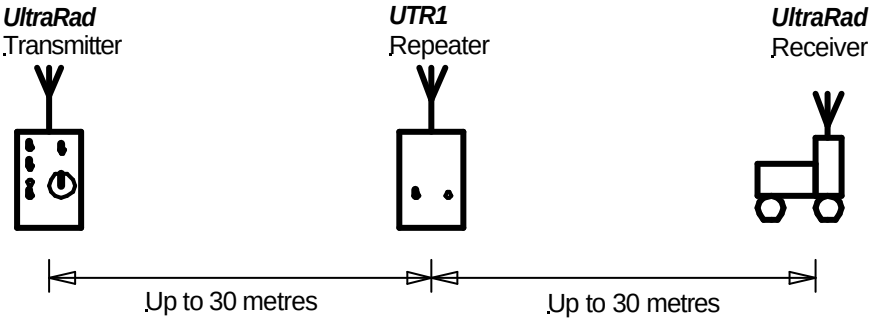
As soon as a valid data packet is received, it is automatically re-transmitted on the same frequency, after a delay of 20 ms.

By suitable positioning of the repeater with respect to both the normal transmitter and the area where improved radio coverage is required, the repeater may be used either to extend the transmitter range to approximately 60 metres, or to provide adequate radio coverage to areas of your garden layout which are shielded from the normal transmitter, for example behind a metal shed or garage.

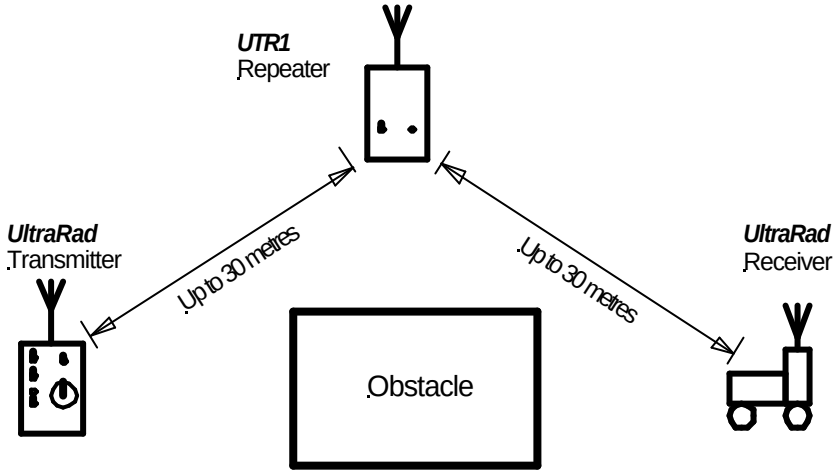
The ***UTR1*** repeater is fully automatic in operation and has no user controls other than a power on off switch. Normal operation is indicated by an indicator **LED** which flashes once each time an ***UltraRad*** data packet is re-transmitted by the repeater.

Mounting the Repeater

To simply extend the range of ***UltraRad*** operation, simply place the ***UTR1*** repeater about half way between the normal transmitter operating position and the most distant point of your layout.



To provide a *fill-in* for shielded areas of your layout, position the repeater where there is direct line of site to both the normal transmitte r operating position and the shielded area



Ideally, the UTR1 repeater should be positioned in open space, a few feet above the ground, with the aerial vertical.

You may need to experiment with positioning to achieve the optimum results.

Batteries

The ***UTR1*** is designed to operate from 8.4 V or 9V battery supplies, using a standard PP3 battery. Either primary [non-rechargeable] or re-chargeable types may be used.

Current consumption of the ***UTR1*** is approximately 15 mA, giving a battery life of up to 35 hours with high power primary cells [550 mAh] or 15 hours with re-chargeable cells [250 mAh]. To conserve battery life, do not leave the ***UTR1*** switched on when not in use.

To change the battery, proceed as follows:

1 Slide the battery compartment cover towards the bottom of the case and remove it.

2 Carefully extract the battery, disconnect it from the press stud connectors, and replace it, taking care to ensure the correct polarity.

3 Refit the battery compartment cover.